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ABSTRACT

These conference proceedings are the result of a collaborative relationship between The University College of Swansea in Wales and the University of Wisconsin--La Crosse, which have been sister institutions for more than a decade. Education faculties from the two institutions shared knowledge about research and practices in education and established a faculty exchange. This proceedings document is the product of the first faculty exchange which took place in the fall of 1992. The table of contents lists seven sections. Section 1, "Assessing Teachers in a Results-Oriented Age," includes: (1) "Accelerating Cognitive and Metacognitive Development: Developing and Evaluating Mathematical Thinking Skills" (Howard Tanner); and (2) "What the Quality Schools Concept Can Mean to Children's Learning" (Bob Norton). Section 2, "Teacher Education: Comparing British and American Perspectives," contains: (1) "Initial Teacher Education in France, Germany and Great Britain: A Comparative Perspective" (Nigel Norman); and (2) "Ersatz Teachers for British and American Schools? 1979-1994" (David Witmer). Section 3, "Impacts of Prevailing Cultures Upon School Curriculum," includes: (1) "The School Curriculum and the Welsh Cultural Dimension" (Brin Jones); and (2) "Academic Skills in the Bilingual Classroom" (Amy Young). Section 4, "Meeting the Challenge of New Demands Upon School Curriculum," contains: (1) "Models for Teaching and Learning Cross Curricular Themes and Competences" (Steve Kennewell); and (2) "Connectivity in the Classroom: Buchenwald as Teaching Model" (Greg Wegner). Section 5, "Teacher Literacy: Learning, Language and Reading Instruction," includes: (1) "PGCE Students Developing Understanding of Teaching of Reading" (Gill Harper-Jones); and (2) "Teaching the Parts in a Whole Language Classroom (Carol Kirk). Section 6, "The Liberal Arts in an Integrated Curriculum," contains: (1) "The Role of Arts in the Curriculum" (Hilary Ball); and (2) "Integrating the Fine Arts into Children's Early Formal Educations" (Sara Slayton). Section 7, "School-University Partnerships in Teacher Education," includes: (1) "Partnership in Secondary Science Teacher Training" (John Parkinson); and (2) "21st Century Middle Level Education" (Robert Richardson). (EH)

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THIRD INTERNATIONAL COLLOQUIUM ON EDUCATION: BRITISH AND AMERICAN PERSPECTIVES

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The first International Colloquium was arranged at the University of Wisconsin - La Crosse in September 1992. Six members of the staff of the Department of Education at the University College of Swansea were the guests of the Department of Educational Foundations at the University. At that Colloquium La Crosse colleagues and each of the Swansea group delivered formal papers and these were published in the Proceedings publication.

The Colloquium was at the heart of a busy program which included visits to educational institutions, meetings with colleagues who shared research and teaching interests and a social program. The arrangements made in La Crosse in 1992 were replicated in Swansea in 1993.

The collaborative link has a number of goals, the most important of which are to provide opportunities for colleagues to undertake collaborative research and to benefit from the exchange of information, on the basis of friendship and trust, regarding research and teaching activities.

We acknowledge that establishing an international collaborative link takes time and we are pleased to present this second tangible product of our efforts so far.

At the end of the Swansea Colloquium plans were made for two more reciprocal visits of colleagues from the two universities in 1994-95.

The Editors
University of Wisconsin-La Crosse
1995

FOREWORD

In these recent years, education reform has become a household phrase. The enterprise of schooling has been scrutinized. Through direct and indirect actions, political decision-makers have introduced major curricular revision initiatives and have forced financial reconsiderations. Education practitioners have adjusted and responded. These are not aftermath activities; rather, we are in the midst of end-century debates and reforms on both sides of the Atlantic ocean.

Education academics in Swansea, Wales, and La Crosse, Wisconsin, are pursuing some parallel research interests. There is much we must do to ensure the survival of professional teacher education. We must provide teachers with the supports they need to validate their contributions to the fulfillment of the public education agenda.

Some community members hale the back-to-basics movement. Yet, we live in an era known for the "explosion of knowledge." Teachers can no longer quantitatively ensure that each student learns *everything* there is to know.

Teachers must: help students discover how to access information when specifics are needed; encourage the maturation of students' metacognitive skills; develop in each student the ability to analyze and synthesize information within global perspectives; cultivate cross-curricular themes and connection; and deliberately tap students' natural interests and inquisitivities. Teacher educators must: empower our graduate-new teachers; think globally; and model teaching analysis and experimentation. Both teachers and teacher educators must model the change process.

Collaboration and connection are key concepts in the perspectives of British and U.S. American educators. No matter the external forces, it remains our service to fashion experiences for students that our meaningful, relevant, and democracy-enhancing.

This publication represents results of the third formal and informal exchange of Swansea and La Crosse teacher educators. In the traditions of alternating host sites, the faculties gathered for this colloquium at the University of Wisconsin, La Crosse.

Robert L. K. Richardson
University of Wisconsin-La Crosse
1995

PREFACE

The University College of Swansea in Wales and the University of Wisconsin-La Crosse for more than a decade had identified themselves as sister institutions to achieve benefits from international inter-institutional collaboration. This proceedings represents a program to augment this cooperation and to establish a close faculty relationship between departments which share common interests.

Burton Altman, Professor of Educational Foundations at the University of Wisconsin-La Crosse met with Michael Williams, Head of the Department of Education, University College of Swansea while doing research in England to gather information about the impact of the 1988 Education Reform Act on teacher education in the United Kingdom.

During this visit and exchange of information, Altman and Williams explored the possibility of establishing linkages between academic educationists at Swansea and faculty in the School of Education at La Crosse. Together they developed a proposal to bring together education faculties from the two institutions to share knowledge about research and practices in education, this was to be accomplished through a faculty exchange. At least six representative faculty members from Swansea would travel to La Crosse in 1992 to meet with staff members to study concepts and perspectives within the profession in an effort to comprehend better the challenges and opportunities of teacher education in the 21st century. In return staff members from UW-La Crosse would meet the following year for a similar conference at Swansea. This proceedings document is the product of the first exchange which took place in the Fall of 1992.

ASSESSING TEACHERS IN A RESULTS-ORIENTED AGE

ACCELERATING COGNITIVE AND METACOGNITIVE DEVELOPMENT: DEVELOPING AND EVALUATING MATHEMATICAL THINKING SKILLS

Howard Tanner and Sonia Jones
University College of Swansea

The ability to solve problems is at the heart of mathematics. The National Curriculum for England and Wales, as well as specifying the content to be taught, requires all students to use and apply their mathematics in a variety of situations including practical tasks and problems drawn from real-life contexts. It is recommended that the ability to use and apply mathematics permeates all aspects of the teaching and learning of the subject. However, in many classrooms, progression in these process skills has proceeded on an unplanned basis.

"The Practical Applications of Mathematics Project" was an action research project funded by the Welsh Office during 1991/2. The project aimed to develop approaches and materials to teach and assess thinking skills involved in using and applying mathematics in practical, modelling situations, with students aged between 11 and 16 (Tanner and Jones, 1993a, 1993b).

Phase two of the project (funded by the Welsh Office and the University of Wales 1993/4) aims to develop and evaluate a thinking skills course to accelerate students' cognitive development in mathematics. The practical activities and teaching approaches developed in phase one form the basis of the course.

Mathematical Thinking Skills

We do not intend to attempt to itemise mathematical thinking skills here for, as Lipman (1983, p. 3) has observed "The list is endless because it consists of nothing less than an inventory of the intellectual powers of mankind." However, Coles (1993) has identified three dimensions: skills, dispositions and attitudes; which are generic to any discussion of the teaching of thinking. In terms of mathematics, a student would know how to perform a procedure, when and why it should be used, and gain a certain satisfaction from using these skills. Any course purporting to teach thinking would, therefore, have to develop the necessary conceptual knowledge, the metacognitive ability to select the appropriate knowledge and strategies, and also the motivation to succeed at the task.

From a Piagetian viewpoint, adolescence marks the onset of formal thought--the ability to reason from a hypothesis and to see reality as a reflection of theoretical possibilities (Halford, 1978). Formal thought has been described (Sutherland, 1992) as a systematic way of thinking; a generalized orientation towards problem-solving with an improvement in the student's ability to organize and structure the elements of a problem. However, these key aspects of problem-solving are metacognitive rather than conceptual in nature. It can be argued, therefore, that formal thought is underpinned by the development of metacognitive skills.

Accelerating Cognitive Development

The secondary mathematics curriculum requires the students to hypothesise and test, to generalise, and to justify and prove their conclusions. That is, students are required to think on a formal level. Adey (1988) argues that, in science, there is a cognitive mismatch between the formal operational demands of the curriculum and the reasoning powers available to the majority of the students. In order to make the work accessible to students, lessons are often pitched at the concrete level with a series of "cookery book" exercises which lead to mainly trivial learning experiences (p. 122). Similar instances can be found in mathematics lessons where the teaching strategies employed restrict the development of concepts. Rather than attempt to raise the child's level of conceptual development to meet the demands of the task, formal concepts are artificially concretised. The use of "fruit salad" algebra a = apple, b = banana, where the letter represents an object, rather than a variable, is an example. Too often the emphasis is placed on the unthinking reproduction of algorithms at the expense of cognitive development.

Recent research has suggested that cognitive development can be accelerated (e.g., Shayer and Adey, 1992; Novak, 1990; Elawar, 1992). A key feature of these studies has been their deliberate enhancement of metacognitive abilities. Indeed, metacognition has been identified by McGuinness (1993) as a primary tool for conceptual development.

The conception of thinking used in this paper is that of thinking as sense-making (McGuinness, 1993), which is embedded in a socio-constructivist epistemology. Learning is a social activity with both cognitive and affective aspects. The culture of the classroom determines the quality and the nature of the learning that occurs. Successful teaching programmes must take into account the social context of the classroom.

The Thinking Skills Course

There are two strands to the course:

> The development of a structured series of cognitive challenges to stimulate the progressive evolution of key skills in the areas of strategy, logic and communication;
>
> The use and development of teaching techniques which will encourage the maturation of the metacognitive skills of planning, monitoring and evaluation.

Underpinning both strands is a continual emphasis on the need to explain rather than describe, to hypothesise and test, and to justify and prove.

Activities are structured to encourage the development of a small number of general strategic or cognitive tools. Each activity is targeted on at least one of the schema of formal operations (e.g., controlling variables, proportionality, correlation, probability, manipulation of symbols).

Activities do not attempt to develop process skills divorced from content-process skills learned in isolation are unlikely to be integrated into conceptual schema, and courses which fail to focus on content are unlikely to gain general acceptance amongst teachers.

The Structure of the Materials

The Cognitive Strand: The pilot course runs over a five month period. During this period experimental classes will select activities from eight groups. The eight groups cover a range of strategies set in key mathematical contexts, linked to Piaget's schemata.

The strategies addressed include:

(a) identification of variables or attributes;
(b) controlling variables, problem posing: "What if not?";
(c) working exhaustively;
(d) systematic working: simple cases first;
(e) spotting patterns and generalising;
(f) relating variables: line of best fit;
(g) coping with real data: estimating, averaging, error;
(h) trial and improvement;
(i) predicting and testing;
(j) explaining and proving; and
(k) communicating results.

The strategies are not addressed separately in the eight groups--skill in comparing and selecting strategies is required, but development of the strategies listed above will be facilitated amongst others. All activities address (i), (j) and (k). Possible routes through the activities are indicated in the course document. The contexts include:

(a) ratio and proportion;
(b) probability;
(c) infinity;
(d) correlation;
(e) the concept of a variable.

The activities in the course do not address directly the questions used in test of cognitive ability. We are not "teaching to the test" but are hoping to establish "transfer."

The Metacognitive Strand: Metacognitive skills are not taught through the content of the materials but through the teaching approaches used. The teaching approaches which were found to be successful in developing metacognitive skills during phase one of the project were based on positive teaching emphasising social processes.

Vygotsky (1978) suggests that a child learns by interacting with more capable others who provide sufficient support for the task to be completed. The teacher acts as 'a vicarious form of consciousness' (Bruner, 1985 p. 24), structuring tasks and controlling the path of solutions until such time as the child achieves conscious control of a new function or

conceptual system. Vygotsky viewed such internalization as a social process mediated by language, with external speech used for communication with others and inner speech for planning and self regulation.

Hirabayashi and Shigematsu (1987) argued that students develop their concepts of metacognition by copying their teacher's behaviour, and thus, their executive or control functions represent an 'inner' teacher. Vygotsky (1978) suggested that all such higher order functions originate as actual relationships between individuals, thus before students can 'internalize' these skills they must develop them explicitly with others. Discussion and questioning within a supportive group leads students to construct a 'scaffolding' framework for each other, which enables them to solve problems collaboratively before they can solve such problems individually (Forman and Cazdan, 1985).

The teaching approaches which were successful in phase one emphasised the following key aspects:

Questioning using organizational prompts: A list of organizing questions was provided and supplemented with oral questions which were asked on a regular basis, eg: "Can you explain your plan to me?" "Does that always happen?" The aim was to encourage students to develop a framework of questions to organize their thoughts. An expectation developed that such questions would be asked and students seemed able to internalize them for use in planning.

Internalization of scientific argument: Groups of students were required to present interim approaches and findings. Presentations were followed up by questioning and constructive criticism. Questioning was led by the teacher at first, with a gradual increase in the amount of student-initiated questioning. Students began to copy the form of question used by the teacher when framing their own. It became clear that groups were anticipating the same form of question about their own presentation and preparing a suitable response. The students were learning how to conduct a scientific argument (Wheatley, 1991).

Start, stop, go: This approach combined the internalization of organizational prompts and scientific argument with an emphasis on self-monitoring and reflection. Tasks began with a few minutes of silent reading and planning. Small groups then discussed possible approaches. A whole class brainstorm followed before returning to small group planning. This ensured that all students engaged with the task and began to plan but that a variety of perceptions and plans was examined and evaluated.
At intervals the class was stopped for reporting back. Students began to anticipate not only the form of questioning which would be used, but also that reporting back would occur. Groups began to monitor their progress in anticipation, which restrained impulsive planning and encouraged self-monitoring.

Using peer and self-assessment to encourage reflection: Students were required to write up their work individually, but selected groups also presented their final report to the class for peer assessment. Reflecting on the work of others led students

inevitably to reflect back on their own work. Through assessing the work of others, students learned to evaluate and regulate their own thinking.

- Students were encouraged to assess their own work against a self-assessment framework for each activity. This formed the basis for a dialogue between the student(s) and the teacher which helped them to understand the criteria against which they were being assessed. The approach parallels in several ways the sequence of stages described by Lipman (1993).

Experimental Design

An action research network of six comprehensive schools, including a variety of social and ethnic backgrounds, was established. The action research paradigm was chosen due to the novelty of some of the activities proposed. Both qualitative and quantitative approaches were used. Two teachers from each school, who were to be involved in teaching intervention lessons, attended an initial one day induction course to familiarise them with the theoretical underpinning to the project and the outcomes of previous work, in particular, effective teaching strategies. Teachers involved in the project are attempting to integrate these approaches into their own teaching styles. Some worksheets used by students are structured to encourage the approach.

Two matched pairs of classes were identified in each school to act as control and intervention groups. One pair was in year seven and one in year eight. Matched classes were either of mixed ability or parallel sets in every case. Before intervention lessons began, a written assessment paper and an attitude questionnaire was given to each student in the control and intervention classes to act as a pre-test.

The written assessment paper was designed to assess students' levels of cognitive development in the context of number, algebra, shape and space, and probability and statistics. A further section of the written paper entitled "Planning an experiment" assessed the students' metacognitive skills in the areas of question posing, planning, and organisation of results. Metacognitive skills of self knowledge were also assessed by asking students to predict the number of questions they would get correct before and after each section.

In addition to the written paper, the metacognitive skills of a sample of 48 students were assessed through one to one structured interviews while attempting an investigation into a pendulum (see p. 7).

The sample of 48 students was generated by asking teachers to identify one high ability and one low ability student in each of the control and intervention classes. These interview based assessments of metacognitive skills were compared with those obtained in the written paper.

Pre-testing is now completed, and intervention lessons have begun for the experimental groups. University researchers act as participant observers in a sample of the lessons in each school. The students who had been involved in the "pendulum interviews" are observed closely in their groups to maintain a record of their development throughout the

course. Further interviews with these students are being tape recorded and transcribed by the research team.

Regular network meetings are held at which experiences are exchanged, strategies discussed and new activities devised and refined.

The pilot course is planned to last for approximately five months, after which post-testing using both written paper and structured interviews will occur. Delayed post testing will occur two months later.

Assessing Cognitive Ability

The written assessment papers are based loosely on a neo-Piagetian framework, in that they assume that children's development progresses through stages and that each of these stages has characteristic forms and limitations of cognitive operation, but that although development may be seen as the formation of increasingly complex cognitive structures, it is limited by the capacity of working memory, (Pascual-Leone 1976, Halford 1978, Case 1985). Thus the facility of an item is affected by its structural complexity and associated demands on the capacity of working memory as much as its level of cognitive sophistication.

A pragmatic approach was taken to the design of the written paper. The study is set in the context of school mathematics and not the laboratory, so due regard was paid to the National Curriculum. Items were placed in the context of the four "content" attainment targets: Number, Algebra, Shape and Space, and Probability and Statistics. Items were generally aimed at testing comprehension rather than simple knowledge.

Items were classified as identifying one of four stages of development, which we referred to as: early concrete, late concrete, early formal and late formal, in line with the Piagetian framework, but account was also taken of the anticipated memory requirements, the assessment structure of the National Curriculum, and the results of large scale studies such as the Concepts in Secondary Mathematics and Science Project (CSMS) and its sequels, (Hart, 1981).

The assessment paper was trialled with 60 year seven and eight students. Items which did not discriminate well within a hierarchy were rejected. Discrimination means that items classified as late formal, for example, should only be successfully completed by children who were generally successful at lower rated items. The final version of the assessment paper included two items at each level in each of the four attainment targets.

Assessing Metacognitive Ability

Metacognitive skills are associated with awareness and control of one's own learning, (Brown, 1987). They include an awareness of what one knows and does not know, the ability to predict the success of ones efforts, (Royer, Cicero and Carlo, 1993), planning, monitoring and evaluating ones work, (Gray, 1991), and an ability to reflect on the learning process and know what one has learned.

One aspect of metacognitive ability assessed in the written paper was awareness of one's own knowledge through the ability to predict one's own accuracy. Each of the four cognitive assessment sections began with the question:

"There are 8 questions in this section. Read them through now. How many do you think you will get right? __ /8."

Each section ended with:

"Read through your answers. Put a tick in the box next to the question if you think your answer is right. How many do you think you got right? __/8."

The metacognitive skills of question posing, planning, evaluation of results and reflection were assessed through a further two sections in the written paper entitled "Planning an experiment" and "Doing an experiment."

Planning an experiment: Students were told that some string and a place to hang it from, a weight holder and some 20g weights, a tape measure and a stop watch were available. They were then asked to think of one interesting question to investigate using the equipment and to write down their plan under the four headings:

My Question
My Plan
I Would Take These Measurements
How I Would Present My Results

Answers were assessed according to a set of criteria which focused on factors such as:

The number of variables investigated, (e.g.,"How long does it swing?" or "I would compare swing with weight");

Whether variables were controlled;

Whether a relationship was sought and the quality of that relationship, e.g., binary--"long string versus time and short string versus time" or continuous--"time measured for 20 cm, 30 cm, 40 cm, 50 cm, and so forth"; and

The presentation of results (e.g., bar chart, ordered table, graph of...against..., seeking an equation or relationship).

Doing an experiment: In this section the results of an imaginary experiment were presented and students were invited to plot them on a graph and make a prediction, test it against a formula and suggest how results could have been made more accurate. This section was not included in the assessment of metacognitive skills but was to test for close transfer of the skills in evaluation of experimental data which we hoped to teach.

Interviews were conducted on a one-to-one basis between the university researchers students attempting to organise and conduct an experiment into a simple pendulum.

Students were assessed through a form of dynamic assessment (cf. Feuerstein, 1979; Brown and Ferrara, 1985; Newman, Griffin and, Cole 1991). The researchers aimed to provide the minimum level of structure necessary for students to progress. The intention was to work in the student's "zone of proximal development" (Vygotsky, 1978, p. 86). Rather than observing students either succeed or fail in a task without intervention, we recorded how much help students required to make progress in a task.

Interviews followed a strict script which included settling down questions, instruction in how to use the equipment and a series of prompts to be used if students failed to progress. The researcher had to make a judgement as to whether a prompt was needed to ensure progress. Interviews were tape recorded and transcribed. Assessments were made against specific criteria for levels of ability in planning, monitoring, evaluating and reflecting during the experiment. These assessments were then checked against transcripts.

A pendulum was set up by the researcher in front of the student and then dismantled. Students were then asked to set up a similar arrangement for themselves. They were encouraged to keep talking throughout the experiment.

"Pretend that I'm your partner, but I'm not as clever as you. You have to explain things clearly so that I can understand what we are doing."

Students were then encouraged to identify variables.

"Your pendulum didn't have to be exactly the same as mine. What things can you think of which you might have changed?"

A series of prompts followed until sufficient variables were identified. They were then asked to hypothesise about which might affect time, using further prompts. They were then asked to set up an experiment to investigate the pendulum.

Marks were awarded for each level achieved in planning, monitoring, evaluating and reflecting. Marks were deducted for prompts given in each section. If prompts exceeded marks achieved, zero was awarded for that section.

An example of a criterion statement:

> Three marks: Shows evidence of planning to control variables and work systematically using binary logic, e.g., times for long one and short one.

An example of a prompt:

Prompt 3: You said we could change.... How could we test to see if it made a difference?

The script was trialled and developed through several different versions before arriving in its final form.

The Reliability of the Assessment Instruments

Analysis of the results of the first 48 students interviewed and assessed reveals that the internal consistency of the written assessment of cognitive ability is high with a good value for Cronbach's alpha.

Table 1
Reliability of the Cognitive Assessment

	Number	Algebra	Shape	Statistics
Number	1.0000			
Algebra	.7765	1.0000		
Shape and space	.7415	.7221	1.0000	
Prob and stats	.7264	.6429	.6861	1.0000

Number of case = 48.0
Cronbach's alpha for the cognitive sections = .9066
Cronbach's alpha for the whole test = .9061

The internal reliability of the metacognitive interview scale is less good, but acceptable. This shorter scale used to assess reflection produced lower correlations with the other skills.

Table 2
Reliability of the Metacognitive Assessment

	Plan	Monitor	Evaluate	Reflect
Plan	1.0000			
Monitor	.7965	1.0000		
Evaluate	.6882	.6377	1.0000	
Reflect	.4187	.3580	.5078	1.0000

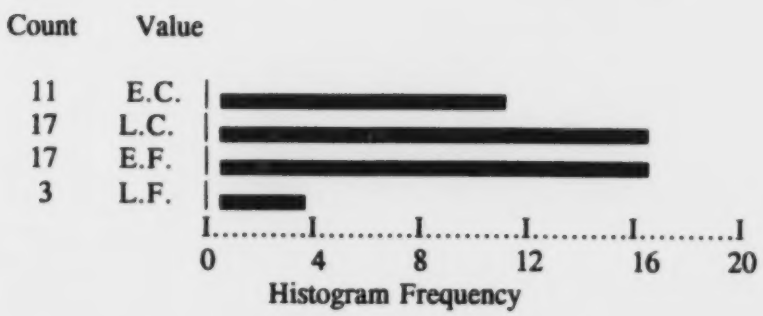
Number of cases = 48.0
Cronbach's alpha = .8418

Level of Cognitive Development

The level of cognitive development claimed by the written assessment, overall and for years seven and eight is shown in tables 3, 4, and 5.

Table 3
Overall Level of Cognitive Development in Sections 1 to 4.

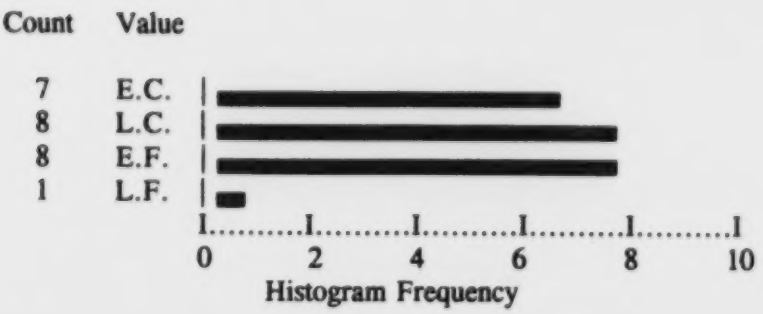
Value Label	Value	Frequency	Valid Percent	Cum Percent	Percent
	E.C.	11	22.9	22.9	22.9
	L.C.	17	35.4	35.4	58.3
	E.F.	17	35.4	35.4	93.8
	L.F.	3	6.3	6.3	100.0
	Total	48	100.0	100.0	



Mean 2.250 Median 2.000 Std Dev .887

Table 4
Overall Level of Cognitive Development in Sections 1 TO 4 Year 7.

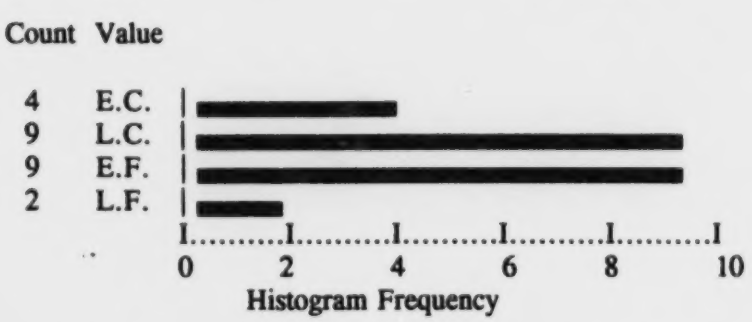
Value	Frequency	Valid Percent	Cum Percent	Percent
E.C.	7	29.2	29.2	29.2
L.C.	8	33.3	33.3	62.5
E.F.	8	33.3	33.3	95.8
L.F.	1	4.2	4.2	100.0
Total	24	100.0	100.0	



Mean	2.125	Median	2.000	Std Dev	.900

Table 5
Overall Level of Cognitive Development in Sections 1 - 4: Year 8.

Value	Frequency	Valid Percent	Cum Percent	Percent
E.C.	4	16.7	16.7	16.7
L.C.	9	37.5	37.5	54.2
E.F.	9	37.5	37.5	91.7
L.F.	2	8.3	8.3	100.0
Total	24	100.0	100.0	



Mean	2.375	Median	2.000	Std Dev	.875

The results show a later development of formal thought for this small sample than claimed by Piaget and more in line with Sutherland (1992) or Shayer, Kuchemann and Wylam (1976) who found concrete operations attained at an average age of 12 or the first year of secondary school. The median student in the sample is late concrete.

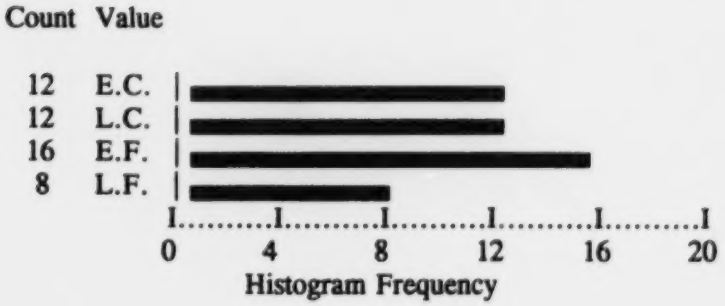
The levels achieved by year eight students are higher than those achieved by year seven students, as might be expected if the test is assessing a developmental level, but the difference between the two years was not significant at the 5% level for a t test on this small sample. Similarly the mean for boys was higher than the mean for girls but the difference was not significant for this sample.

Tables 6, 7, 8 and 9 show the levels achieved in the separate sections on number, algebra, shape and space, and statistics and probability. Although there is a significant correlation between the results of these sections (one tailed sig=.001), they lend support to the view that children do not become " formal" in all areas simultaneously. There is horizontal "decalage" or lag. This may be due to lack of experience in these areas since the development of new ways of thinking or it may be due to limiting capacity in short term memory. The debate will not be entered here, but the implication may be that immediate

cognitive acceleration should not be expected after the development of metacognitive skills. It may be necessary for children to encounter fresh experiences to interpret with their new found skills before advantages can be seen, (cf. Shayer and Adey, 1992).

Table 6
Section 1 : Number

Value	Frequency	Valid Percent	Cum Percent	Percent
E.C.	12	25.0	25.0	25.0
L.C.	12	25.0	25.0	50.0
E.F.	16	33.3	33.3	83.3
L.F.	8	16.7	16.7	100.0
Total	48	100.0	100.0	



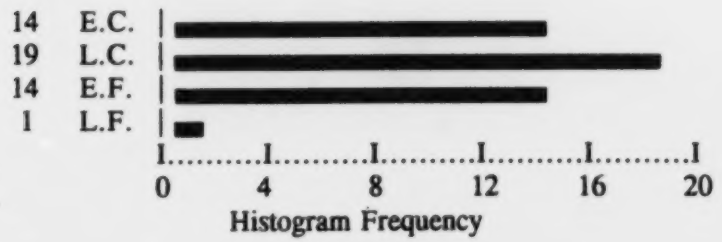
Mean 2.417 Median 2.500 Std Dev 1.048

Table 7
Section 2 Algebra

Value	Frequency	Valid Percent	Cum Percent	Percent
E.C.	14	29.2	29.2	29.2
L.C.	19	39.6	39.6	68.8
E.F.	14	29.2	29.2	97.9
L.F.	1	2.1	2.1	100.0
Total	48	100.0	100.0	

Table 7

Count Value

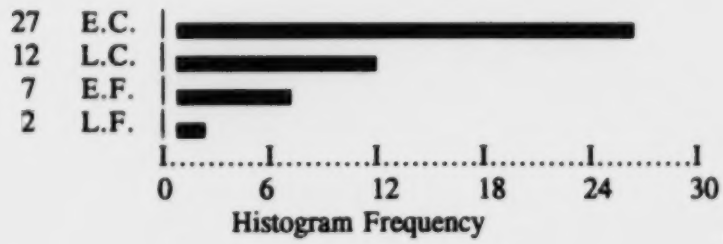


Mean 2.042 Median 2.000 Std Dev .824

Table 8
Section 3 SHAPE AND SPACE

Value	Frequency	Valid Percent	Cum Percent	Percent
E.C.	27	56.3	56.3	56.3
L.C.	12	25.0	25.0	81.3
E.F.	7	14.6	14.6	95.8
L.F.	2	4.2	4.2	100.0
Total	48	100.0	100.0	

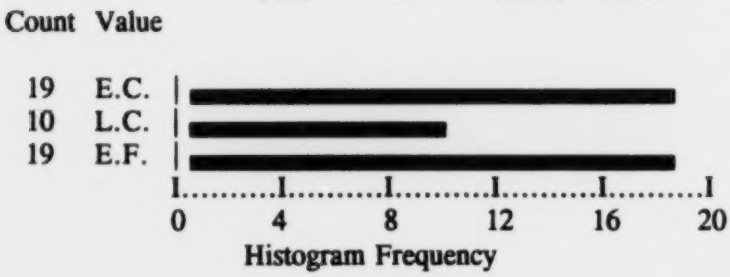
Count Value



Mean 1.667 Median 1.000 Std Dev .883

Table 9
Section 4 Handling Data

Value	Frequency	Valid Percent	Cum Percent	Percent
E.C.	19	39.6	39.6	39.6
L.C.	10	20.8	20.8	60.4
E.F.	19	39.6	39.6	100.0
Total	48	100.0	100.0	

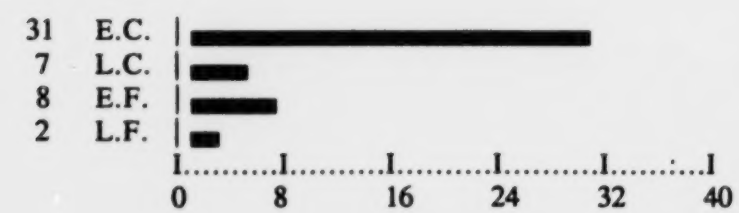


Mean 2.000 Median 2.000 Std Dev .899

The results of the metacognitive assessments made during the pendulum interviews reveal the level of metacognitive development to be lagging behind the level of cognitive development. The median student was assessed as early concrete in this sample, (see Table 10).

Table 10
Level of Metacognitive Development (By Interview):

Value	Frequency	Valid Percent	Cum Percent	Percent
E.C.	31	64.6	64.6	64.6
L.C.	7	14.6	14.6	79.2
E.F.	8	16.7	16.7	95.8
L.F.	2	4.2	4.2	100.0
Total	48	100.0	100.0	



Histogram Frequency

Mean 1.604 Median 1.000 Std Dev .917

Comparing the 3 different metacognitive assessments

A value for the metacognitive skill of predicting the score to be obtained was calculated by the following formula:

Predict 1 = (abs(p1-a)+abs(p2-b)+abs(p3-c)+abs(p4-d))/4
where:

(a) p1, p2, p3, p4 are the predicted scores in sections 1, 2, 3, and 4 respectively,
(b) a, b, c, d, are the actual scores obtained in sections 1, 2, 3, and 4 respectively
(c) abs means absolute value.

A similar calculation was made for the post-section prediction.

The great majority of children overestimated rather than underestimated their performance. The mean value for predict 1 was .25 for boys and .22 for girls. This difference was not significant at the 5% level for this small sample. There was a significant negative correlation between Predict 1 and cognitive ability, (-.61, see Table 16). Students oflow cognitive ability are unable to predict whether they will succeed in a question or not.

Correlations between metacognitive assessments made in the written paper and the interviews were good (Table 11). These correlations lend credence to the claim that these metacognitive skills are associated. Six students missed out the pre-section prediction questions and 16 students missed out the post-calculation prediction questions, reducing their potential for metacognitive assessment.

Table 11
Correlations Between Metacognitive Assessments

Correlations:	Predict 1	Sect 5	Interview
Predict 1	1.0000		
Section 5	-.5257	1.0000	
Interview	-.5226	.5793	1.0000

N of cases: 42 1-tailed significance = -.001

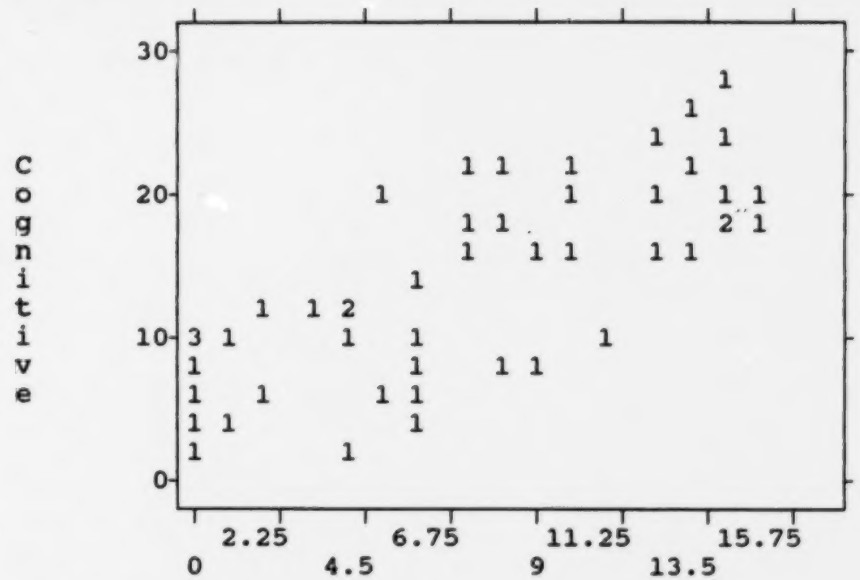
A high correlation was found between level of cognitive ability and metacognitive ability as measured by prediction, section 5 or interview. The correlation between metacognitive ability as measured by the interviews and cognitive ability was very high. (Tables 12, 13, 14, 15, 16)

Table 12
Correlations Between Cognitive and Metacognitive Abilities

Cognitive ability	1.0000		
Metacognitive interview	.7516	1.0000	
Section 5	.6195	.5908	1.0000
	Cognitive	Metacog	Sect 5

No of cases = 48 1-tailed significance = .001

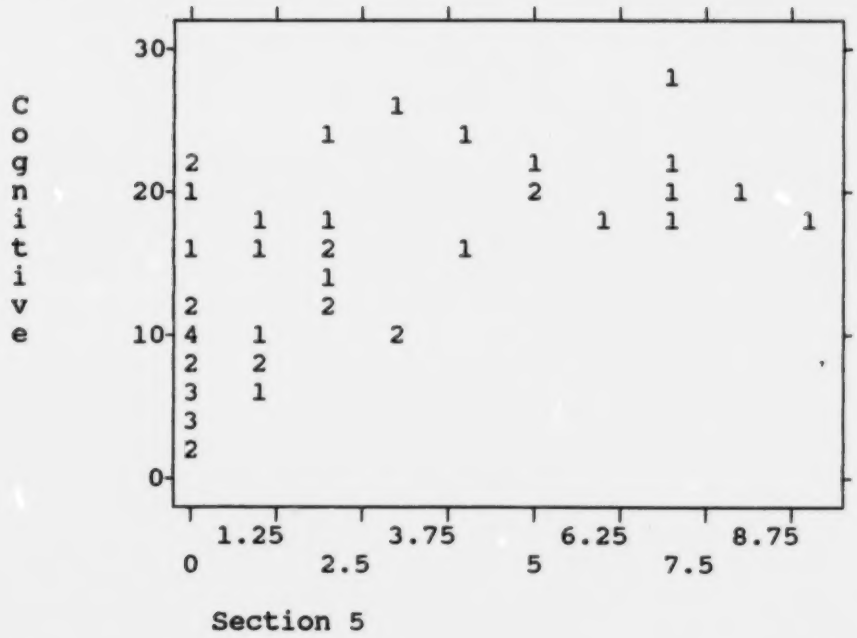
Table 13
Metacognitive Ability (Interview) Against Cognitive Ability



Metacognitive Ability by Interview

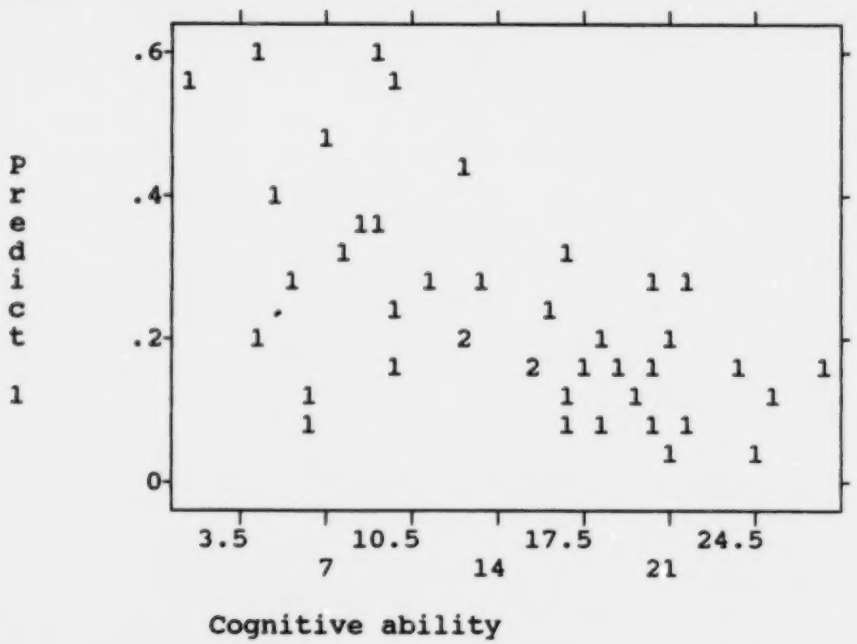
Correlation: .7516 No of cases: 48 1 tailed signif: .001

Table 14
Metacognitive Ability (Section 5) Against Cognitive Ability



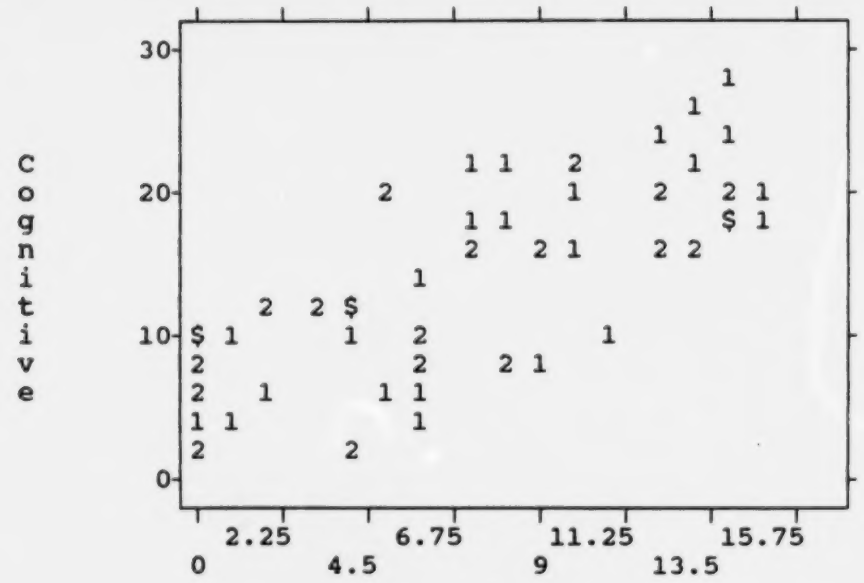
Correlation: .6195 No of cases: 48 1-tailed Signif: .001

Table 15
Metacognitive (Predictive) Against Cognitive Ability



Correlation: -.6131 No of cases: 42 1-tailed Signif: .001

Table 16
Metacognitive (Interview) Against Cognitive Ability by Sex



Metacognitive by interview

1 = Boy, 2 = Girl $ = Coincident cases

Correlation: .7516 No of cases: 48 1 tailed signif: .001

Conclusion

The ability to think formally and to generalise and explain underpins the secondary mathematics curriculum. Recent research studies using problem centred learning suggest that cognitive acceleration is possible in early adolescence (Cobb et al., 1992, Shayer and Adey, 1992). There is also evidence to suggest that students' metacognitive development can be enhanced (Tanner and Jones, 1993b).

At the time of writing, the project schools have only just begun the pilot intervention programme and no reportable results are yet available about the success of the intervention lessons, but the results of the assessments of cognitive and metacognitive abilities made through interview and written paper suggest that metacognitive and cognitive abilities are very closely linked.

The results also show that metacognitive abilities are lagging behind cognitive abilities in the small sample described here. Metacognitive abilities underpin formal modes of thought and the development of metacognitive skills should lead to accelerated cognitive development.

It is hypothesised that the metacognitive and strategic skills of the intervention classes will be enhanced through the teaching approaches described in the paper. This close transfer through direct teaching would not be unexpected. It is hoped however, that there will be a corresponding improvement in the level of cognitive ability. This transfer at a distance is not expected to be immediate but is likely to occur as newly acquired metacognitive and strategic skills are applied to new topics as they are met. Thinking skills pay for themselves not so much during the week or month in which they are acquired as during the years that follow, (Perkins, 1987).

The pilot intervention project is very short and differences between control and intervention groups may not reach a significant level in the limited time scale, but the close association between cognitive and metacognitive skills reported here emphasises the need for closer and longer term studies in this area.

The script was trialled and developed through several different versions before arriving in its final form.

The Reliability of the Assessment Instruments

Analysis of the results of the first 48 students interviewed and assessed reveals that the internal consistency of the written assessment of cognitive ability is high with a good value for Cronbach's alpha.

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WHAT THE QUALITY SCHOOLS CONCEPT CAN MEAN TO CHILDREN'S LEARNING

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Inspection Model -- The problem

Whenever I am looking to purchase an item and it has a label attached to it stating, "Inspected by," I am immediately on guard. If the product produced was quality, there would be no need for the "inspector" mentality. However, we have been exposed so long to a model of production that has final inspectorship as the definition of quality that we have accepted it as the hallmark.

As the inspectorship mentality has dictated American schooling and industry, we have experienced a continual decrease in quality. It has been demonstrated by numerous publications that American standards of quality in education and industry are inferior when compared on a world basis. Where is the root of this problem? Is it in a lost pride of workmanship? Is it our capitalist system that evolves around mass production, with the acceptance that quantity has priority over quality? Is it the management-worker relationship where the boss assumes to have the power to make workers produce? Is it that as consumers we are willing to purchase inferior products if the price is right? Or, is it caused by having lost the ability to set a standard that requires quality? I fear it may well be the result of a schooling process being imposed upon learners for thirteen years, the developmental years, which breed acceptance of all of the above.

When one examines the assessment model in our schools, which is taught at teacher training institutions, it is obviously one of inspection. The model promotes the teacher as having total and final authority over quality. This is the outcome when the product is evaluated solely on an outsider's point of reference. The problem of inspection is twofold. The inspector becomes the standard setter and the evaluation process inhibits the inspector from being perceived as a helper.

In universities, the student's job is to create predefined products. Produce the paper, take the test, practice the lesson plan, etc., while the professor plays out the role of inspector. His/her job is to define the product, set the standard, and inspect/evaluate the product by assigning his/her indicator of quality. The future teacher has already been conditioned to the inspectorship model by 13 years of public school evaluation and is now further programmed to perpetuate the system.

I do not believe the problem rests solely on the teachers; it's the problem of how the teacher has been subjected to a system that emulates inspection. How can they be expected to perform outside of the inspection model when they have been molded by it and are expected to enforce it? Yet, the possibility to reverse the role of inspectorship is now in our grasp. We have a model that can move the classroom from outside evaluation to one of self evaluation and, in the process, create the environment for quality work. Outside evaluation, in managerial language, is "top-down" whereas self-evaluation is "bottom-up."

Inspection exemplifies top down management and implies that quality will be produced as the consequence of the outside "expert." This is the role that has been assigned and accepted by teachers. Bottom-up management is based upon the premise that the person or persons producing the product have a basic desire to produce quality work and are the most reasonable and qualified ones to make decisions regarding quality. In the classroom the student needs to be empowered and taught the skills of self-assessment so they will be able to make appropriate decisions regarding the quality of their products.

There is confusion in educational thinking as to what constitutes which type of management. William Glasser, in the preface of his book, The Quality School, quotes Strayle Webb in an attempt to differentiate the boss manager (top-down)R from the lead manager (bottom-up):

A boss drives.	A manager leads.
A boss relies on authority.	A manager creates confidence.
A boss says "I."	A manager says "we."
A boss creates fear.	A manager shows how.
A boss creates resentment.	A manager breeds enthusiasm.
A boss fixes blame.	A manager fixes mistakes.
A boss makes work drudgery.	A manager makes work interesting.

Through these two different managerial techniques, we can see the possibility for two very different outcomes in terms of student quality and output. The top-down teacher: "drives"; "authoritates" and uses "fear, resentment, and blame" in an atmosphere of "drudgery." No teacher intentionally practices these things--they are simply part of the cause and effect relationship of top down management. The bottom-up management "leads," "exhibits confidence in self and others," "shows how," and makes learning interesting.

The confusion is due to the fact that few teachers have had the opportunity to explore the two models. Teachers are programmed to employ top down management. They are subjected to use a reward/punishment management system to evaluate and supposedly motivate students, employ a pre-set grading system, teach from weekly developed lesson plans and enforce pre-established rules which dictate a boss management system.

The following characteristics taken from educational periodicals and described as indicators of bottom up management verify this confusion of what constitutes top down, bottom up management.

These six principles are reported to be the prime factors that create a positive learning environment. The term *effective lead manager* was used to describe the teacher who implemented the principles.

1. Planning before school year: materials, space, rules, procedures, daily plans posted.

2. Room is arranged for ease of mobility and eye contact.
3. System and procedures for class activities are taught to students at the beginning of the year.

a. transitions
b. distribution of materials
c. homework
d. recess
e. using the restroom
f. sharpening pencils
g. question-answer sessions
h. beginning class on time
i. what to do when work is finished

4. Directions are clear.
5. Active teaching includes a variety of activities, lots of teacher-led instruction with less set work.
6. Monitoring occurs during set work and interactions are short (precise, prompt, and leave).

When one analyzes these six points, it becomes obvious that we are discussing top-down management. The six points all refer to teacher-planned, teacher-driven learning. The teacher is in charge, all procedures and progress are pre-determined, and the student becomes the recipient completely denied the possibility of ownership and decision making regarding their classroom. Re-read the six points and it becomes obvious they are the products of a top-down managed classroom.

My grandson in elementary school brought home his material and procedure list at the end of the first day. It stated he should have one pink eraser. When he and his mother went shopping, they found a blue eraser, as well as a pink one. After a discussion, Zack decided to buy the blue one, to see if his teacher would react to his choice. He came home the next day and reported blue instead of pink didn't seem to make any difference to the teacher, but his classmates told him that he simply must go buy a pink one right away. Top down management destroys creativity, involvement, taking chances, choice making, decision making, ownership, and promotes conformity.

Inspection becomes the vehicle which the top-down manager uses in an attempt to achieve quality, even though it fails to do so. The concepts of self-responsibility, self-determination, self-assessment, and "we work together" are of little or no consequence. Because this model of boss management is continually modeled and systematically taught to education majors, it becomes the system perpetuated by most school systems. It becomes very difficult for a teacher, a particular school within a system or the system itself to perform outside this model!

Cooperative learning, one of the major positive movements in classroom teacher delivery, can fall into the trap of inspection. The teacher is encouraged to do small group monitoring, often times interpreted as the need to use positive verbal reinforcement or monitor for non-functional and stop the group to begin correction. For cooperative learning to become effective, the groups must learn how to verbally reinforce each other or design a system for self-monitoring for correcting themselves during task time. The teacher's role should be to watch the students, collect data for later discussion, and only intervene when the

group becomes non-functional. One of the most difficult re-training steps for a teacher to develop is to not continually intervene during the time the task groups are working; it's hard to break the inspection habit.

I find a major problem within the inspection model. It is based upon the outside evaluator, boss manager, who creates situations and attitudes that are detrimental to the students' perceptions of self and school, and are equally destructive to the overall classroom environment. Inspection implies more than grading student work and filling in a report card. It inherently implies total teacher responsibility for all aspects of the classroom, including behavior management, rules and regulations, motivational techniques, and continual evaluation of students' social and academic progress. Inspectorshipping mentality denies the student the opportunity to be a significant decision maker regarding his/her own learning and behavior. Inspectorship management, which places the teacher in complete charge, becomes overwhelming, energy exhaustive, and creates an adverse teacher/student relationship.

The system of inspectorship sets in place the model for students to do low quality work. This is partially accomplished by students developing an attitude and behaviors of doing just enough to succeed, based upon the students' degree of concern over which A to F grade they receive. There is little difference between the "A" and "D" student regarding attitude toward work. Both have developed the attitude of doing only what needs to be done to meet the inspector's requirements. The "A" student will do more work to get the "A" grade, but seldom go beyond the assigned work. The "D" student does less work with the attitude of just enough to get by.

A second aspect of inspectorship that is detrimental to student attitude of doing high quality work results from negative feedback. The inspector's job is to evaluate, feedback, and require re-doing to meet the standards.

I am sure all can remember the time, or times, in our elementary or secondary school career when a paper was returned to us thoroughly inspected. It had as many teacher evaluation marks as our own writing. These evaluation marks meant either a failure or the dreaded "do over" syndrome. If you were fortunate enough to receive only a few of these marked inspected papers, then you were a student who had the skills that were being expected, understood the system, and agreed to work within the system. Most likely you did, as you made it through the inspection system for at least 16 years with a fair amount of success and minimal discomfort. However, many students didn't make it or if they appeared to make it, in all honesty they didn't. For them, the marked up papers, the repeated failures, and the endless do overs all equated into one of two meanings. Either they believed they were incompetent in that subject area, and thus gave up, or they believed they couldn't succeed because their teacher didn't like them and therefore wouldn't let them. Both of these responses are absolutely devastating to a student and should be inconceivable classroom outcomes from a teacher's perspective.

When I discuss the issue of inspection with elementary age school children, the majority view negative evaluation reports as the result of their inability to grasp the concepts. They form the perception, usually during, if not before, the third grade, that the problem is within them and they have failed due to not having the ability to do competent work, and their

enthusiasm for the subject begins to diminish. This is followed by a decreased amount of energy allotted to the subject, which creates a downward spiral. This perception of "I can't do the work" is then continually reinforced by the inspection model.

I often hear many well-intentioned teachers attest to the fact that they cannot expect the same levels of work from one student as from another, while they continue to grade, evaluate, and inspect all students through the same standard and system. It doesn't take long for the student who receives poor evaluation marks to see him/herself as a failure in subjects where he/she gets low marks. The student assumes the problem causing the low marks is their fault as he/she observes others doing well. Such a student quickly learns to dread the time given to his/her 'weak' subject and creates a state of fear, frustration, and confusion and begins to develop strategies to avoid the subject. The student rejects all that the subject entails, refuses to do required work, and is punished for it. Thus, the perception is continually solidified. The downward spiral is totally intact and strengthened by many of the teacher's behaviors, which are the outcome of the inspectorship model.

By the time students are in middle school, many subjects are rejected completely. I am annoyed and frustrated by this rejection of subject matter, but when investigating as to why, I'm never surprised when they say that they didn't make the inspector's grade. How can anyone twelve years old dislike the sciences, with all of its mysteries, excitement, revelations; or math and its relations to logic and the fact that it is used everyday, or any of the other subjects taught in middle school? In each area, if the student doesn't like it, I can guarantee you, one of the major reasons is she/he didn't make the grade. The only difference is by now approximately 10% of the students have been weeded out by special education and the majority of the rest have discovered numerous ways to beat the system and minimize the pains of failure and hard work. The inspector model had eliminated a personal standard of quality and the inspector standard is now ignored.

When discussing inspection with high school students, their perception changes dramatically. Many see the problem of inspectors as a personality conflict, the teacher simply doesn't like me. She/he has favorites that get the good grades and no matter how hard I try, she/he sees me as a "C" student. Quickly they report "Why try?" Another common response is: "I'll do just enough to get by, it really doesn't matter how hard I try." When talking with high school teachers, the most common concern I hear is: "What can we do to get them to work, they just don't seem to care." A major problem in the high schools today is the students' unwillingness to work hard in the academic ares and this problem is inherited by high school teachers. Motivation through inspection was so misused in the earlier years that by high school, for many students, work is a non-existent aspect of school life.

In the primary and intermediate grades, if the students perceive themselves as good, it's due to the fact that the teacher, acting in the inspector role, has granted them good reports. The student response has been a self-perception that, first of all, "I'm good at this" and secondly, "The teacher likes me." This student, when in high school, continues to work and relate and is productive. When the opposite happens and the inspector issues bad reports, the response is, "I'm not good at this subject and I'm not liked by teachers, so why try." There are too many students that have the "I don't care" and "It really doesn't matter" attitudes BEFORE they enter high school. This tragic attitude then continues throughout high school

and becomes the norm in adulthood. The consequence: poor self-concept, poor work ethics, and the willingness to accept a standard of producing low quality work.

According to the Deming management method, "Companies that depend on mass inspection to guarantee quality will never improve quality. Inspections are too late, unreliable and ineffective" (Walton, 1992).

Now, substitute the word "school" for companies: "Schools that depend on mass inspection to guarantee quality will never improve quality. Inspections are too late, unreliable, and ineffective."

Can the classroom teacher function effectively without doing some inspection? No! The answer lies in developing a balance between teacher input, determined by the student, and student self-assessment as the control for quality student produced learning products. Thus, we begin to create a definition of inspection based upon student determination rather than teacher inspection. This concept rests on the belief that true and lasting motivation is intrinsic. The student self-assessment model is built upon the premise of trust--that all students want to perform well, interact, become engaged in learning, and continually seek new and higher levels of performance, thus continually improving the quality of their work. The research on motivation consistently reports that for work to be meaningful and done at a high level of quality, it must be personally rewarding, by allowing for maximum personal input and resulting in personal satisfaction. This finding is a reflection of how and why we choose all of our behavior. What motivates us to behave is our wanting to fulfill basic needs and wants. These needs and wants are self-perceived and expressed by needing to have fun, freedom, belonging, and power. When we encourage students to become self-assessors we begin the process of opening these pathways by teaching them the process of self-determination.

In the inspection model, there is an expectancy placed on the classroom teacher to be responsible for the production of work that their students do. Most often this expectation is created through a combination of principals' expectations, the result of their teacher preparation, and assumed parent expectation. With these expectations, the attitude of needing to be in charge to keep order and engineer the learning process of students is quite logical. The belief that "I'm personally responsible for causing learners to learn a given amount of information in a nine month period" is reflected over and over again when teachers talk with each other. This perception also becomes enmeshed in the opposite direction. Not only do they need to prepare their students for the next academic school year, but they also must adjust to the perceived failures of last years' teachers to prepare the students for THIS school year. All of us who teach have been engaged in the discussion which reflects that "Why hasn't someone before me done the job?" issue. In the inspection model, fellow teachers, as well as the student, are fair game in the search for why isn't the student making the grade.

I was scheduled to observe a student teacher in a kindergarten class and when I entered the room the regular classroom teacher was verbally engaged with the children. She was so focused she didn't see me enter. By the tone of her voice and the direct message that "everyone of you had better settle down and get to work" I thought she was preparing them for a good performance with the student teacher, for my benefit, during the observations. But

she wasn't; she went on to inform them how hard first grade would be and how much was going to be expected of them. She weighed this against how poorly, in her opinion, they were doing to get ready for first grade. As she put the fear of first grade into their internal world, I could see her own sense of accomplishment reflected by the little people sitting there--mouths open, eyes big, and listening to every word. I wasn't surprised when the student teacher used the same procedure during her lesson.

After the observation, we had a three way conversation regarding the lesson I had observed. When I inquired about the motivational technique of using fear of first grade, both the classroom teacher and the student teacher became somewhat offended and informed me that their job is to prepare students for first grade. Because of their obvious frustration with me, I decided not to ask them how preparation for the rigors of the first grade had outweighed the psychological and academic levels of the kindergartners' own needs. They then proceeded to let me know just how little I know about the issue of "teacher accountability," which meant that they were ineffective teachers in the eyes of the principal and the first grade teachers if they were unable to prepare kindergartners for the next school year. I realized that the inspection model was well in place in that particular school and classroom and that we were preparing a new teacher to emulate the same model.

Why does the classroom teacher perform in an inspection model program? They have been immersed in the theory and practice of behaviorism. They believe that as the classroom teacher, they are responsible for all learning; the most effective way to get results is to use a combination of rewards and punishments. The systematic process of using the reward and punishment establish the teacher's sense of control and power and causes the student to become dependent upon the teacher. The teacher establishes the dependency as he/she makes positive and negative judgments about the student's social and academic achievements or lack of them.

Once this method has been perfected, the follow up belief is that I am also responsible to know what and the amount you should learn. In order to determine the amount and the rate at which the material needs to be mastered, other students of the same chronological age are compared, and a standard, based upon the average is formed. Now, as the teacher inspects the student's individual performance, the teacher judges the individual student's work by comparing the work against the standard. If the student's performance doesn't match the standard, it's not the teacher's fault, there must be something wrong with the student. Thus, teachers sort and then create the many levels of education and the same inspection continues, justified by new standardized, average perceived criteria. These levels keep expanding from gifted and talented to regular education to alternative education to exceptional education, to specializations in special education, to levels within the specialized area of exceptional education; do they ever stop?

This mind set is so enmeshed in our thinking that we have national and state educational departments that actually believe we can change individual student performance by simply re-establishing a new standard that has higher expectations. We are then forced to do more inspection by the incorporation of state and national testing programs. It's a vicious, destructive, downward spiral and the individual child in the classroom suffers the consequences.

Dr. Deming so emphatically points out in his seminars on management method, that as the worker in the American industrial model is degraded and manipulated into a lesser degree of control over his/her dignity on the job, the pride of work and output equally disintegrates. A sense of disenchantment, hopelessness, and eventually apathy become the consequences of degradation and manipulation. Such a sequence is so often spoken of by teachers and echoed by students.

Standards are an absolute necessity in the production of quality work. As was emphasized in the first two chapters, students must be continually involved in classroom discussion, modeling, and analyzing quality. A major aim of the classroom teacher is to have all students develop an awareness of standards of quality and to assist them as they learn the process of setting high, yet reasonably accomplished standards for their work. Standards have meaning when they become self-determined and self-assessed.

How do we move away from our present inspection mode of inspection to self-assessment? We can't until we change our belief system about how we behave and are motivated. I alerted you to the fact that a prerequisite to this book is The Quality School written by Dr. William Glasser, published by Harper and Row, 1990. I highly recommend this book and suggest you take a second look at Chapters 4, 5, and 6.

When is inspection needed? Dr. Deming advocates that it is of absolute necessity during the period that the product is being produced. It is what happens during the process of production that creates quality, not the inspection of the finished product. The students must be taught how to include the teacher, as one of their benchmarkers, into their quality management process by using him/her for feedback, during the creation of the product, which enables them to reach the high level of quality that they have predetermined and articulated. Inspection has as its only purpose helping the students to gain confidence and progress towards the degree of quality that satisfies their final self-assessment of the product.

This is very different than collecting the work at the end of the designated time of completion and proceeding to make the final judgment about the value of the work. A curricula that comes closest to continual feedback with minimal final teacher evaluation is art. Seldom does one observe students not working in art and there is an excitement about what they are doing. The art teacher is continually moving about the students, often stopping and talking with them about a specific aspect of their creation, sometimes suggesting a perspective, but seldom telling them they have to do it differently. The final product is usually self-evaluated. A very different picture emerges in what are considered the basic subject matter classes such as language, math, social studies, and science. The students are normally engaged in teacher directed work, often times by specific questions from a workbook, either teacher made or textbooks designed, the teacher is the supervisor, or boss manager, and the students understand that the work will be turned in for teacher inspection. Give students the option of math class or art and most will choose art. Most students respond that art is fun and math is not.

As teachers we need to analyze why art is more fun and then the factors of creativity, ownership, and self-motivation become apparent. I do not believe that it is the subject itself

which is fun or not, but the student's personal belief and level of control over the process and outcomes that cause it to be a pleasurable or non-pleasurable experience.

The students will need to be taught and have continual assistance as they perfect the process of becoming proficient self-assessors. It is impossible for them to make this transition unaided and much confusion and frustration often occurs as students set out to redefine evaluation and set their own standards of quality. This is quite normal, especially for students who have spent years in the traditional system of teacher directed assignments and outcomes.

Teachers need to realize that pure self-assessment is most appropriate for topical study in areas of science, social studies, health issues, problem solving, literature, writing, the performing areas of art, physical education, music and technical education. Each topic or unit is a unit of study that has specific knowledge, attitude development, and action plans of personal implementation. They provide opportunity for individual exploration, individual standard setting, and creation of different products to express the outcomes. Topical units allow for maximum variability.

Skill building in the areas of reading and math are sequential and more defined. They are teacher directed, specifically taught, and need documentation of mastery, as future skills are dependent upon the sequential mastery.

Assessment in these two areas requires demonstration of mastery of a skill. They become teacher focused as the skill must be observed or tested to determine mastery, which requires inspectorshipping. The teacher has professional responsibility to judge the level of mastery and determine if the student should proceed to a new, more advanced skill or remain and continue to work towards mastery at the present level. The student can be involved in some self-assessing within the math and reading program, generally pertaining to recordkeeping. Recording completed assignments, books read, documentation of listeners for reading accomplishments, and documentation of levels of math accomplishments are examples of self-assessment and recordkeeping.

The process of teaching and applying true self-assessment in the topical areas has five basic steps that need to be taught.

1. Determination of what, how, and depth of inquiry
2. Definition of product
3. Setting standards
4. Benchmarking
5. Final assessment

Determination of What, How, and Depth of Inquiry

The first step occurs during introduction of the lesson and is part of the motivation. It is to help the students realize that the topic has different possibilities of exploration, areas for indepth investigation, or related study, and there is a variety of ways to gain the knowledge. Teaching students to determine what and how they want to learn, is the beginning for

invested learning that leads to self-assessment and high quality work. The better they can identify the "what to learn," the easier it becomes to determine the "how to learn."

The teacher has the responsibility to develop the unit of study and define specific academic and social outcomes that become the bases for study as the unit develops. These outcomes must be thoroughly understood by the learners as they become paramount when they develop their learning action plans. During the time the students are developing their understanding of the outcomes, the teacher's enthusiasm and sense of importance for study of the topic is of absolute necessity as the interest and enthusiasm transfer to the students and excites and interest and enthusiasm to become involved and engaged.

The unit of study has numerous possibilities that allow the student to have a choice that pertains to their interest for indepth investigation. The areas are discussed and the student begins to consider an area that they find interesting and might select for their learning plan. The teacher then shares with the student what they will be providing as an information base for the unit. The teacher directed learning is presented in a sequential format and highlights lecture material, films, basic reading assignments, guest lectures, field trips, etc.

As the students understand what the teacher will be providing and the possible areas for indepth study, they begin to plan to develop their "learning action plan." The teacher helps the students set parameters such as time allotted for inquiry, product development, and time for specific product presentation. This definition of teacher and student responsibilities is basic to developing quality learning and quality work.

Definition of Product

The second step is to help the students understand the need to define their final product. It can be a picture, a report, an oral presentation, a video, an authority to speak on the topic, or whatever it is that the students believe will help them in the process of developing a knowledge base and making application of the information. I am always amazed at the variation of products created when the students are given the opportunity to choose their products. The products often correlate with each student's perceived individual learning style. The writers often write, talkers often speak, the scientist develops an experiment, and the dramatist creates a skit.

Another thing that never ceases to surprise me is the confidence they have to experiment with different products. As they watch, listen, and interact with their peers who are experimenting with various modes of expression to solidify their learning, they see new ways to learn themselves. How different this is: no more "take out your work books, open to page twenty, do questions one through nine, try to have it done by the end of the period, if not take it home and have it ready to be checked by the beginning of class tomorrow."

Setting the Standards of Quality

The third step of self-assessment is to set the personal standard of quality that the product will possess. This enables the student to complete the job of self-assessment. The

more set standards that are stated, the simpler the final self-assessment task becomes. The more the picture of the product is defined, the clearer the plan of how to proceed.

Benchmarking

They must be taught that there must be feedback during the process of production. Benchmarks insure the final product will be quality. The more exact this criteria is, the more assurance the students have of high quality at completion of their work. The benchmarks need to be identified by stating who will do the inspection, when it will be done, and what specific information is needed.

I observed two university sophomores attempting to learn the skills of self-assessment in a child development class where I was the teacher. It was entirely new to them, so we had to work through their trauma of not being told what to do to please the teacher while still hoping to receive a high mark. This took some doing, with frustration being expressed through anger and the statement: "You're supposed to tell us what to do." Why wouldn't they think this way when it is how they have worked for the last fourteen years? Teacher tells me what to do, and I do it. Teacher inspects it, assigns me a grade, and I go on to the next assignment. Real simple: All I have to do is complete the assignment the way the teacher wants me to and meet his/her requirements. No need for me to determine what I want to learn, how I want to learn, or to set individual standards. When the final product is done, there is no need to assess it for quality.

Once these students got over the traditional teacher driven instruction, they became quite excited about the idea of self-assessing and developing benchmarks to insure quality. The topic related to television and did it or did it not affect the values of nine and ten year olds. One of the students, based on her perception of being a good writer, decided to develop her product into a written handout of approximately three pages in length. The second, again based on her perception of having strength in oral presentations, planned to develop her product around a four minute speech. Step two was completed--the product was defined.

They then engaged in step three--developing the standards for their finished product. They decided to each watch three different children's television shows and record what values were being presented. They then would meet with each other and compare notes. The notes were shared, they would develop a questionnaire and then interview four nine or ten year olds. They would have designed questions to determine what T.V. shows were watched and ascertain if they had any effect on these children's values. The last aspect of the investigation was centered on each reading two recently published articles that pertained to the inquiry and see if their findings compared or contradicted their conclusions. It was exciting to watch them set the standards for the development of the final product.

At this point, they set their benchmark for quality checks to take place during the process, ensuring that quality is being built into the product and will be achieved upon completion of the work. This is a time that inspection is justifiable as the student has built the inspection into the plan to ensure quality. The two sophomores asked if I would meet with

them and look over a rough draft of the questionnaire, check point No. 1, before final submission of the paper and prior to the oral report, would I read and listen and provide specific suggestions, check point No. 2. They asked that I become part of the process at the specific check points and that I do some inspection work.

Helping students understand the need to set specific benchmark points to guarantee quality work can be difficult, especially with primary students. I was discussing this aspect with a first grade teacher. She related how her students interpreted it to mean that they had to have continual monitoring and confirmation of their progress. She found that art was a good area to begin the process of teaching self-assessment, as the students seemed to accept art as being self-directed, individualized, and a personal creation. The students found it easy to talk about the process of creating their pieces of art. She would write the sequential steps which taught them to see the relationships between planning, pre-determined set standard levels, and the need for self-evaluation of their pictures.

The process of becoming self-assessors is developmental. When students have the opportunity to experiment and develop self-assessment skills in the primary grades, they become very proficient by fourth grade. Fourth graders have developed a level of reading, writing, and math skills that give them the latitude to interrelate topical study and academic skills, as well as having the confidence of self-direction that is basic to self-assessment.

Documentation and Evaluation of the Standards

The last process in self-assessment is final evaluation, which is determining the degree that the pre-set standards are met in the finished product. They realize that quality doesn't just happen. It requires the definition of a product, the pre-determined standards, the necessary checkpoint to insure quality, and the need to do a final self-inspection to see that all points have been done. Quality is the mark of their final products. The final self-assessment requires the student to document how and to what degree they met their pre-set standards. did they do the data or information collection, complete the benchmarks, meet their requirements of depth of explanation, length, neatness? If it was a usual presentation, the above factors are evaluated, as well as the audience reaction. Students become very efficient at designing self-evaluation and reflect honest judgment of their work.

The student understands that all products can be re-done if they don't meet their quality standards at completion. This assurance, "You have time to redo the product well," is one of the factors that proves the teacher is committed to quality. The student realizes that they don't have to rush and do superficial work to get the job finished. They are being taught to set reasonable expectations within a reasonable time line. Their ability to manage time for product completion is one of the valuable lessons of self directed, self-assessed work.

When helping students develop the idea and standard for a quality product, it is often helpful for them to see some models. Start collecting these models early and get them from other sources, as you don't want to present classmates' work as the model of quality. I have seen this done in classrooms and it sets the stage for unhealthy interactions. It puts the student whose work is exhibited as "quality" in an awkward and uncomfortable position. They have

to deny their good work if they choose to stay as one of the accepted people in the class or they must take on the role of the star. Neither one leads to a positive self concept.

Small group sessions, where students pool their collective wisdom and devise lists which can be used as guidelines for self-assessment can play a major role in assisting individual students to decide on their own standard of quality. For example, if you want students to become more aware of the various editing skills they need to use, you might ask the class to work in groups to devise lists of all the editing issues you can think of. Students working on this task in a fifth grade classroom included the following statements which were given to me by a fifth grade teacher in Australia, where I was conducting a teacher inservice session pertaining to quality classroom management.

1. Pull a full stop at the end of a sentence (C.).
2. Put a capital at the start of a sentence or a name (L).
3. Put speech marks when someone talks (" ").
4. Put a question mark after a question (?).
5. If there are two meanings, put brackets around one ([ ]).
6. Put an explanation mark if someone talks loud (!).
7. When you talk about something different start a new paragraph.
8. Commas are for instead of writing "and" (Beverly, Louis, Craig and Jason).
9. This is a sentence _____ (I am sick.).
10. A colon (:) is when you are going to say something but in different words.

Each individual student then worked from the list and developed their own lists for use when editing their final written products.

Self-assessment isn't easy when it is introduced to students who are in high school or university studies and it has not been part of their elementary and secondary school learning experiences. The following is taken from the cover of a graduate student paper written to me in a class that was experiencing self-assessment:

> As this is the first time that I have had to self-assess, I must admit that I feel uncomfortable doing it. Not so much as assessing the work but consciously giving myself a mark as how I see my own work and having someone else know how I feel about my work, it's kind of like bragging; however, I honestly feel in this paper I have met the criteria in a sufficient manner, and relating it to my two previous papers, I give myself an A. (I really would have given myself a B so I didn't feel like I was being presumptuous, but I feel really that it is worth an A.)

Specific Examples of Student Self-Assessment

I. Student Developed Contracts

Contracts set the academic expectations and responsibilities for the student as she/he enters into an agreement with the teacher. The contract sets specific tasks that both parties agree upon and for completion within a given period of time. The contract (1) poses problems of varying degrees of difficulty, (2) specific work experience to solve the problems (reading-

interviewing-writing-discussion), (3) benchmark feedback, (4) specific time line, and (5) plan for final evaluation.

II. Student Developed Oral Interviews

The student develops the format for a structured or unstructured dialogue that reflects specific knowledge or understanding gained from specific learning. The student specifies (1) who the interview(s) will be conducted with (peers-adults-experts), (2) develop specific questions to test or receive feedback on their knowledge or understanding, (3) sets criteria for questions, (4) provides for benchmarks, (5) sets time line, and (6) criteria for final evaluation.

III. Student Developed Written Interviews

Use same format as II.

IV. Portfolios

A collection of student-produced artifacts that serves as evident of proficiency. The student chooses items that provide samples of specific knowledge gained and application of knowledge. Dates of all work are recorded as well as the facts if the work was the result of individual or group process. The portfolio features accomplishments only, reflects individual learning styles, provides evidence of performance beyond factual knowledge, and depicts the process of learning. The student can select to center the portfolio around specific purposes; examples are a career center portfolio, an achievement portfolio, an assessment portfolio. The student must (1) determine the purpose of the portfolio, (2) set standards for entries, (3) develop a time line, and (4) plan for final self-evaluation of the portfolio.

V. Student Self Evaluation of Products

Student products represent completed student work in a variety of forms; written, videotapes, audiotapes, computer demonstrations, dramatic performances, bulletin boards, debates, designs and inventions, investigation reports, simulations, art, physical constructions. Students demonstrate understanding, originality, ability to report progress in an effective and attractive manner, growth in social and academic skills and attitudes, and success in meeting criteria. The student must (1) select the product, (2) set standards for quality, (3) determine benchmarks, (4) develop a time line, (5) determine self-evaluation plan.

VI. Student "I Know" Statements

At the completion of a lesson, the student selects and, in written form, writes an "I know" statement. The purpose is to give the student the opportunity to self select things they have learned during a class session, an investigation, or a series of lessons. They accumulate the statements in a series of summary sheets that reflect the student self-analysis of what were important topics, ideas, skills, knowledge, understanding, and applications. The student must (1) develop the form for recording, (2) set a specific time for recording the "I know" statement, and (3) determine a self-evaluation plan.

VII. Student determines "I know--I believe--I plan to do" statements

At the completion of a lesson, the student self-determines and write statements that reflect their understanding of the information by completing a number of "I know" statements. They write the "I know" statements in a three-column format. They then use the "I know" statement to relate it to something they now believe, followed by a "I plan to do" statement. The student must (1) create the form, (2) set a specific time for recording, and (3) determine a self-evaluation plan.

VIII. Student journal

The student, either through oral or written entries, develops an accumulated document that reflects their reactions to specific learning. The student must (1) select the form of entry, (2) set type of entry examples, (a) specific knowledge gained, (b) application of the knowledge, (c) open end, (3) set standards for entry, (4) specify time of entry, and (5) final self-evaluation plan.

The following is a form for student self-assessment:

Model for Student Self-Assessment

Unit:

Dates of implementation:

Areas of subject integration when unit is thematic:
_____ physical education
_____ language arts
_____ science
_____ math
_____ social studies
_____ art
_____ music

Teacher defined basic outcomes:

1. Academic:

2. Social:

3. Areas for student selection of in-depth investigations (student selects one):

4. Outline and time frame of teacher directed activities:

5. Assigned reading/time line:

Teacher led direct-teach areas:

(Designate lecture, class involvement, specific group integration, open meeting, motivational meeting, process meeting, basic task group, cooperative task group, base group.)

Audio visual presentation:

Speakers, guests:

The following is a form suggested for a student designed plan:

Student Designed Learning Action Plan

Name: Date:

Area of in-depth study:

Statements of anticipated outcomes (What I want to learn):

Select product that demonstrates learned outcomes:
_____ written report
_____ oral presentation
_____ visual presentation
_____ diagram
_____ artistic representation
_____ experiment
_____ video presentation
_____ facilitation of class discussion

Plan of investigation (select areas for your investigation--keep notes, information from even areas of ink types):

Reading options--type, amount, time line:

_____ magazines	_____ textbooks
_____ notes	_____ encyclopedias
_____ newspapers	_____ books - fiction

Interviews:

_____ expert in subject	_____ parent
_____ peers	_____ brother/sister
_____ teacher or in-school person	_____ neighbor

View specific television shows
Experiments
Pertinent information from teacher directed activities
Benchmark to ensure quality

Sources to provide feedback as the product is continually developing to higher quality (Specify when and how the sources are to be used):

Possible benchmark sources (Parents, teacher, peers, experts):
Source:
Who:
When:
What feedback do you want?

Presentation of Quality Product:

Analysis of Self-Assessment:

Amount and quality of work involved
Analysis of finished product
Amount of knowledge gained
Neatness or product
Success of presentation of finished product
Assigned grade ___ or percentage ___ when designated

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TEACHER EDUCATION: COMPARING BRITISH AND AMERICAN PERSPECTIVES

INITIAL TEACHER EDUCATION IN FRANCE, GERMANY, AND GREAT BRITAIN: A COMPARATIVE PERSPECTIVE

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> An experienced teacher learns a good deal from visiting another school and watching another teacher at work. It would be an excellent thing if considerable numbers of our experienced teachers, both in secondary and in elementary schools, could be sent abroad and to America, in order to see and to judge, and then to tell us when they returned home whether some of the things which they had seen abroad were not an improvement on what is ordinarily done at home.

These words, spoken by Sir Michael Sadler at the Guildford Educational Conference on October 20, 1900, (quoted by Bereday, 1964, p. 307) serve a dual purpose. First, they remind us of the essential value of the comparative enterprise in education. Secondly they stand as an emblem of our present joint undertaking, and so derive particular force from the appropriacy of context--a context that appears to have changed little over nearly a hundred years.

In this paper I shall endeavour to endorse the validity of Sadler's claim by considering different systems of European initial teacher education, and suggesting that, whilst transplanting is palpably a risky venture, some transfusion can revive an ailing patient!

Perhaps indeed we shall see whether some of those things seen abroad "were not an improvement on what is ordinarily done at home" (p. 311, 1963).

Some preliminary considerations on the nature of comparative research will lead to a discussion of a major preoccupation, at least in the present British situation, namely competences,a short description of developments in the French and German systems, as they relate to the British system, and conclusions based on my findings.

Comparative Education--Strengths and Pitfalls

An unambiguous rationale of the comparative approach is to be found in Kandel (1959):

> "The methodology of comparative education is determined by the purpose that the study is to fulfill. If the aim is to learn something about an educational system, a description without explanation would be sufficient.... From the point of view of comparative education such an account is limited, but is an essential first step in the process of study.... If the discipline is worth pursuing, it is essential that the student search into the educational system or systems that he is studying. His task is to learn what forces determine the character of the system, what accounts for differences or similarities.... He will not find answers...from information about the fabric of the system that he studies. Nor will he garner what should be the finest product of comparative study--ability to analyze his own systems of education and add something to the philosophy underlining it" (pp. 271-272).

At times of great change in education it is perhaps salutary to look beyond one's own shores at other systems. Not that some of the precedents in the field of comparative education have been such as to commend themselves readily to the observer for the validity and transferability of their findings. The difficulties implicit in the comparative approach are all-too apparent: fundamental differences of language, culture, historical and philosophical tradition, political and social systems, national and regional administrative organisation. These are all highly desirable and necessary characteristics of a pluralist society, yet all intrinsically potential obstacles to the construction of a reliable model of comparative research. This awareness of a doomed enterprise again found conscious expression in Sadler's address (Bereday 1964),

> I am inclined to think that, on the subject which we are about to discuss, if we are quite frank with ourselves and with other people, we shall have to confess that we are not all of one mind. We are going to ask ourselves whether really there is anything of practical value to be got from studying foreign systems of Education (p. 307).

The implication that indigenous systems of education are culturally bound, context-specific and, for myriad historical and pedagogical reasons, simply not replicable, does indeed initially have a certain unerring logic. This applies moreover not only between countries, but also within the borders of single countries.

Germany is a federal republic, in which each of the sixteen states (Länder) has autonomy of constitution, government, legislation, and system of education. Under the terms of the 1949 Basic Law (Grundgesetz) education is firmly in the hands of the Land. Although the broad basic structures, curricula, qualifications and underlying rationale are common at national level, there is limited scope for central government to influence educational policy. The system is characterised therefore at school, higher education and teacher training levels by decentralisation, independence and diversity.

As against this Great Britain is a constitutional monarchy, with a central government in England and Wales responsible to the electorate for national educational policy-making and legislation. A particular feature of the organisation of education in England and Wales has, until recently, been the pronounced decentralisation to the local education authorities. However, recent moves away from this method of administration at local level, together with direct central government influence on teaching and learning in the form of the National Curriculum and, latterly, proposals to shift the locus of teacher training from Higher Education Institutes (HEI) to schools, and thus fundamentally to alter the role of higher education, are all symptoms of a radical shift in the opposite direction to that in France and Germany. Clearly the contexts for comparison are both internally as well as externally problematical.

If one can discern any common trend in the changing pattern of initial teacher education throughout mainland Europe it would be its increasing incorporation into the university sector, along with the recognition that teachers need a thorough professional training, with a solid theoretical base to complement the "hands on" of practice.

Citing recent developments in teacher education in France and Great Britain, Ryba (1992) refers to the introduction in September 1991 of the new Instituts Universitaires de Formation des Maîtres (IUFM) as a "... direct result of a concern by the national government to bring together into a single uniform and rational system, the professional training of teachers at all levels in the French educational service." This is considered to be essentially consolidatory, establishing "a university-level pedagogic training for all teachers" (p. 36).

"In Britain, on the other hand, current trends are towards the diminution of such university-level training and the return of training functions to the schools."

Intriguingly, Ryba goes on, "It will be interesting to see whether this latter development turns out to be a blind alley or a forerunner of a more general European trend." It would seem more likely, however, that it is historical and political circumstance, developments and traditions embedded within a nation's culture that determine the nature of educational evolution, rather than any universally-shared notions of pedagogy and educational substance.

Nevertheless, as Hilker (1964) points out, there have been various attempts during the 19th and 20th centuries at establishing a practical application of the comparative method. He cites the effects of war as a focus for more peaceful international co-operation, and "The question of whether a comparison of educational institutions and practices in the various countries could not yield insights toward a better and more unified orientation in the education of youth" (p. 223).

Perhaps it is in the very variety of different educational institutions and the process of understanding and interpreting them to others that the essential meaning and function of the comparative enterprise reside ? Detailed and effective descriptions are powerful initiators of change, and change lies at the heart of the educational process. The evidence of non-quantitative research which paints a picture of alternative possibilities is ultimately as likely to affect practice as hard statistical data. Such an investigation, that looks beyond national systems, will inevitably throw light on such questions as "What is professional knowledge?" "What are Educational Studies?" which exercise all teacher educators.

By examining contrasting approaches to such issues one can become more aware of the deficiencies of enduring polarities such as the traditional theory versus practice, academic versus practical. The following, taken from a paper written over thirty years ago (Holmes, Bereday, and Lauwerys, 1963), illustrates the classic tension that has prevailed in the world of initial teacher education programmes and which continues to colour present-day debate.

> Programmes from the most advanced to the least developed are inadequate. The least that can be said is that they are not intellectual enough in nature for the training of a profession conceived of as guardians, embodiments, and disseminators of the accumulated heritage of knowledge. Where programmes are academic, as often as not they are too formalistic, over-verbal, and ritualistic in character. Most programmes in older countries ... are of this nature. In newer, more modernized societies, programmes tend to be too practical. The narrow notions of professionalism and the excessive

concern with the minutiae of the pedagogical process and method of teaching mar the effectiveness of such training (p. 127).

These remarks find contemporary resonance in the concern over the introduction of competences into the British system.

Competences and Teacher Education

The issue of competences has generated a lively debate over the years. Moskowitz (1976) urged caution over the adoption of what she called the "laundry-list" approach, summoning hastily into use hundreds of ill-researched statements purporting to indicate teaching effectiveness, presumably importing the analogy of 'performance indicators' from the world of business and management. More recently, Whitty and Willmott (1991) referred not only to the discredited example of the USA's flirtation with this approach in the 1970s, but also to the impact of competences in the further education (FE) sector in the UK in the early 1980s and their current use in the award of NVQs (National Vocational Qualifications). The argument that competence-based teacher education encourages an over-emphasis on skills and techniques, on performance and outcomes, rather than understanding and process--in short on the *what*, rather than the *how*--has led to talk of the routinisation and formularisation of teacher education. Nevertheless, in a cogent and balanced summary of the arguments for and against competence models, Whitty and Willmott (1991) outline some clear benefits:

Demystification of teacher education;
A clearer role for schools/colleges in the training process;
Greater confidence of employers in what beginning teachers can do;
Clearer goals for students.

As against this the difficulties are:

It may lead to reductionism;
It may shift the emphasis toward outcomes at the expense of learning processes;
It may be difficult to reach agreement on a definition of competence;
It may be difficult to arrive at valid and reliable criteria for assessment (p. 317).

Norris (1991) questions the whole foundation of technical precision, observable and assessable behaviours and occupational relevance upon which the competence approach is predicated. The simple equating of competence with standards, harnessed to prevalent notions of quality and accountability, overlooks the highly problematic nature of the phenomenon, and its ultimately dubious transferability to the often unquantifiable complex of processes and interactions that make up teaching and learning. Equally the preoccupation with observable, practical skills is manifestly at odds with the liberal and critical aims of education and indeed with the very concept of the "reflective practitioner." Interestingly there appears to be no comparable system in France and Germany, where, ironically enough, traditions of academically rigorous subject expertise continue to exert a stronger influence, and professionalism tends to consist of ensuring that, as Pritchard (1993) writes, "Teachers (in Germany) have adequate conceptual equipment as well as practical competencies (p. 358)."

Moreover, the academic level is demanding and the overall teacher-training "package" substantial.

According to HMI (OFSTED, 1993)

> To parallel this two-phase system in England and Wales would imply training all students via an honours degree extended to masters level, followed by two years of school-based training on the lines of the experimental Articled Teacher Scheme (p. 16).

Although the same could be said about the French system, the challenge of the new IUFM structure is precisely to rectify what HMI (Department of Education and Science, 1989) found to be

> ... the lack of coherence between the general education programme, the individual methodological training and the practice in the school, each being undertaken by a number of different contributors who do not necessarily confer...and the heavy dependence upon the professional competence of a large number of practising teachers who work in isolation and who receive relatively little training and updating for the task (p. 9).

Here indeed lies the common problem for all three systems of teacher education : coherence between higher education and schools, the developing roles of those involved, in particular with reference to mentor time and training, and a common and shared understanding of the effective, rather than the competent, teacher.

Duality in Teacher Education

At the heart of this whole issue lies a fundamental duality in the basis of teacher education in parts of Europe, that goes back to the nineteenth century and that has at its roots what Neather (1993) refers to as "the split between the worlds of the elementary school and the higher secondary school, leading to a comparable duality in the training of teachers" (p. 33).

This divide was characterised by the differentiated nature of the training offered to the trainee elementary school teacher, which had a closely defined academic content restricted to what was essential for the teaching task. There was an emphasis on methodological techniques, which were carried out in a rigid and prescriptive manner. As against this the future higher secondary (grammar) school teacher would receive a loosely structured academic education to a high level in a single discipline. Such study would have far exceeded the level required for grammar school teaching, and may well have contained much that had little or no relevance to it. No pedagogic training was considered necessary. This two-class system was carried out in the colleges of education in England and Wales, the *écoles normales* in France, and the *Pädagogische Hochschulen* in Germany, and produced primary school teachers, 'instituteurs' or 'Grund-und Hauptschullehrer,' who not only had different designations, but different conditions of service, pay structure and social status. The model thus followed was known as the "concurrent" model, subject studies and practical professional preparation being pursued simultaneously or concurrently.

In contrast the higher secondary school (grammar school) teacher followed a course of pure subject study within the relatively free environment of a university, only entering upon a period of professional training at postgraduate level under the "consecutive" model. Naturally enough this led to a sharp distinction between theory and practice, which continues to be the bane of teacher training. King (1970) refers to the 'stigma of training' and to the perhaps ill-conceived notion that teachers at the higher level have traditionally been deemed to be "educated," whereas at the lower level they are "trained": "The highest kind of teachers need no training. It is enough to know and to pronounce" (p. 58, 1993).

This devaluing of the pedagogical and the perpetuation of the almost embarrassed attitude towards the role of higher education in teacher training has, until recently, bedevilled attempts at reform in all three countries.

Models of Teacher Education

In tracing the history of higher education involvement in the training of teachers, Taylor (1990) writes, "In many systems it was not until the second half of the twentieth century that...professional training became a pre-requisite for employment as a secondary school teacher. In some places, its necessity remains controversial even today" (p. 173).

This highlights once again the, at best ambivalent, at worst suspicious and, frankly, contemptuous attitude towards professional training, and the issue of who should provide it and where. Conscious of the gulf between the reality of the chalk-face and the remoteness of academe, which he terms "the Janus-like character of teacher education," Taylor summarises the overall trend in a number of European countries today as one "towards greater integration of primary and secondary teacher preparation into higher, post-secondary education (p. 173)."

Such integration has taken place over a long period in different countries: In the United States during the first half of the twentieth century, in Canada during the 1950s, in Great Britain and Australia in the 1970s and early 1980s, and in France not until 1990, when the proposed IUFMs were to turn primary teaching into an all-graduate profession.
Taylor identifies four institutional models for teacher preparation in advanced countries:

The integrated university model;
The European model;
The binary model (non-university institutions of higher education operating parallel to universities);
The Scottish and New Zealand Colleges of Education model (pp. 175-176).

The last two of these go beyond the scope of the present paper, but closer examination of the first two models is appropriate at this point.

The Integrated University Model is one in which a university school or faculty of education undertakes teacher training, both primary and secondary, advanced courses, in-service training and research. Its earliest development is exemplified by those self-standing teachers' colleges in the United States that were upgraded and incorporated into higher education institutions to create eventually some twelve hundred separate teacher programmes

catering for all age groups and phases. Staff in such institutions nowadays would typically often have extensive school teaching experience, be engaged in higher degree work generally directly related to their postgraduate teacher training activity, and through direct contact with partnership schools be able to disseminate and share good practice and develop in-service work of a wide-ranging, varied and practical nature. This is clearly a model that has been followed with the creation of the IUFM in France, whilst perversely this very model, or at any rate the university element of teacher training contained in it, is under threat in the swing towards school-based training in England and Wales. The German model, as will be shown later, is a further refinement and one that has provided the British with several valuable principles.

The European Model is one in which there is a sharper distinction between primary and secondary training than in North America, Great Britain and other Commonwealth countries. Certainly the tradition in France and Germany has been one of segregation, inequality of course content and professional preparation, status and pay, all of which were underlined in the separate institutions used for training: *école normale* and Pädagogische Hochschule for primary; university/CPR and university/seminary for secondary. Research work and advanced courses are carried out mainly in universities, and secondary training is typified by what the British would call the "grammar school tradition" (i.e. with the emphasis on the academic, rather than the pedagogic).

This polarisation, that hinges on the terms "education" and "training," and their respective connotations, is fundamental to the whole issue, regardless of the country in question, although an examination of the developing situation in France, Germany, and England and Wales does help to clarify an otherwise clouded scenario.

France

In France, prior to the introduction of the IUFMs, intending primary teachers spent two years at university studying academic disciplines, received the DEUG (*Diplôme d'Etudes Universitaires Générales*) if successful, and spent a further two years in professional training at an *école normale*, entry for which depended on a competitive examination. Secondary trainees were recruited at graduate level, after a further one or two years of university study to that required of primary teachers, and again upon successful completion of a rigorous academic *concours* (competition), the CAPES (*Certificat d'Aptitude au Professorat de l'Enseignement Secondaire*). They would then spend a year training in a regional training centre called a CPR (*Centre Pédagogique Régional*). Two-thirds of this time would be given over to school-based work i.e. practical teaching, and one-third to CPR-based work, i.e. subject methodology and general educational theory. During their time in the CPR, student teachers became state employees and were paid a salary. A comparable situation prevails in Germany, but in England and Wales only in the experimental Articled Teacher Scheme, not in the standard teacher training route of the Postgraduate Certificate of Education (PGCE). The principal innovations of the IUFM, as summarised by Greaves and Shaw (1992), have been:

1. Intending primary and secondary teachers are trained in the same institution;

2. Intending primary teachers are recruited at degree level (as are future secondary teachers), so establishing an all-graduate profession, with accompanying change in status as civil servants;

3. The competitive examination taken by all students at the end of the first of two years at the IUFM, has come to include a "professional test," based on school experience, a sign of a move towards a professionally better prepared teaching body;

4. The IUFM, which subsumed the old *écoles normales* (Primary) and the *CPR* (Secondary), have been accorded the status of university institutes, with clear expectations to engage in educational research.

In spite of inevitable teething troubles, the IUFM represent a positive effort by the French to iron out inequalities in their system, to aim for greater "professionalization" and to standardize teacher-training by aiming for closer integration of theory and practice.

Germany

In Germany, in spite of regional variations in the *Länder*, there has generally existed a two-phase pattern to teacher training, which, like France, has perpetuated the academic/ pedagogical divide. During Phase 1 students study their academic disciplines (normally two) together with educational science, at university or teacher training college (*Pädagogische Hochschule*). Education seminars tend to be largely theoretical and deal with the general principles underlying the teaching and learning of a school subject, or with a discussion of different teaching methods. Students spend relatively little time in schools and school experience might consist of organised group visits with a university member of staff, together with a few weeks of observation of classes, organised by students individually. There is a short period of teaching (e.g. for future *Realschule* and *Gymnasium* teachers in Rheinland-Pfalz one block practice of two weeks and one of four weeks, with perhaps two or three lessons taught, observed and discussed). The school experience is more of a "taster," without the responsibility that comes with Phase 2.

HMI (OFSTED, 1993) summarise the German arrangements in the following way: The general picture is of high-level academic training in two subjects with a largely theoretical education course added on but given little weight. One professor commented that the primary aim of the university was not to produce teachers (p. 13).

Teaching competence is <u>not</u> assessed at the end of Phase 1. Before proceeding, candidates have to pass the *Erstes Staatsexamen* (First State Examination), which is set and administered by the state, not the university, because it is the state which eventually accredits teachers and grants them the licence to practise. It is an academic examination,comprising written papers on curriculum content and methodology. This formal, subject knowledge-based university phase is followed by the predominantly practical Phase 2, the professional stage of teacher training, known as the *Vorbereitungsdienst* (preparatory service).

Phase 1 lasts at least 8 Semesters (4 years), whilst Phase 2 lasts 24 months (2 years), during which time trainees become temporary civil servants (as they do in France) and

receive a salary which is about 30 per cent of the relevant civil service grade. Status and differentials operate at both a financial and semantic level: Trainees for the *Gymnasium* (grammar school) are called *Referendare* and are on a higher grade than trainees for the *Grundschule, Hauptschule* (elementary primary and secondary schools) and *Realschule* (secondary technical school), who are designated as *Lehramtsanwärter*. Comprehensive schools (*Gesamtschulen)* are very much a minority in the traditional tripartite German educational system.

With reference to the status enjoyed by the trainees,which is something like that of junior hospital doctors or solicitors doing articles, HMI point out (OFSTED,1993), "The closest parallel in the British system is with the experimental Articled Teacher Scheme" (p. 16).

Phase 2 training is based in a *Seminar* (teacher training centre), which is independent of the university, and staffed largely by practising teachers called *Fachleiter* (Phase 2 teacher trainer), who teach in their own schools for half the time and supervise the trainees for the rest. It is particularly noteworthy that HEI do not contribute to this work. The *Land* issues guidelines for the content of the subject method sessions, which often take place in training schools, and deal with principles and methods of teaching a subject and with the associated techniques of assessment.

As HMI reported (OFSTED, 1993) the *Fachleiter* is crucial to the system, as is the mentor in the training school. They found varying standards in both primary and secondary sectors, but found, interestingly, in the *Gymnasium*, "The subject mentors were fully conversant with phase two training and confident in their training role" (p. 15).

About 60 per cent of Phase 2 is school-based, which is roughly comparable to that spent on PGCE courses in Great Britain (albeit on a 36 week course!) Work in the *Seminar* covers general educational issues and subject method, as in the system in England and Wales. Over the two years, the education component takes up about 30 per cent, the subject method component about 70 per cent of the *Seminar* time.

The teaching practice is divided into stages, again comparable to those in a PGCE course in England and Wales: observation, supervised teaching and independent teaching. Lessons taught are observed and carefully analysed afterwards. As Chambers (1992) noted, with reference to another *Land*, Schleswig-Holstein, "Trainees benefit from the prolonged period of school-based teacher-training. They feel adequately prepared to meet the challenge of the classroom by the end of the two years" although students were negative about the initial stages. "The opening Semester can be very difficult, given that trainees are required to teach from their first day at the school without any preparatory training" (p. 18).

Assessment is both formative and summative: Students are observed six times in their two subjects by each *Fachleiter*,and six times by the director of the *Seminar*. Final assessments (*Lehrproben)* are made jointly by the Director of the *Seminar*, the tutor from the *Seminar* and the head of the school and in the presence of other trainees. There is no centrally determined government model of what constitutes a minimal level of teacher

performance (competence), although grades are given on a 1-6 scale (1 being "very good," 6 "unsatisfactory"). The final grade for the Second State Examination is heavily weighted towards practical performance and is a significant factor in gaining employment.

Reactions from student teachers were, as Chambers (1992) discovered, inevitable and understandable: "Students feel that the *Lehrprobe* and its subsequent discussion are very stressful; it is possible that the observers outnumber the pupils in the class." Whereas HMI observed that debriefing sessions on such occasions encouraged a high level of serious professional discussion, the quality of comment was "robustly critical and intellectually rigorous...open and fair," but "The process is not one that would easily transfer to the British context. In the German context, it adds rigour and quality control to the school-based training" (p. 16).

Of the conclusions drawn by HMI, for our purposes, it is worth singling out the following:

1. Salaries, working conditions and civil service status help to sustain high levels of professional qualification and a comparable quality of teaching and learning in schools.

2. Close integration of theory and practice is maintained by delivery of *Seminar* work by practising teachers, rather than university tutors. The *Vorbereitungsdienst* (Phase 2 teacher training) aims for high quality school focus rather than a high percentage of classroom contact.

3. The crucial role of the *Fachleiter* (Phase 2 teacher trainer), who

    a. has credibility as a school teacher;
    b. runs subject,phase or education seminars;
    c. supervises trainees in several schools;
    d. provides calibration of practical assessments across schools; and
    e. complements subject mentors' work in training schools.

4. Control of the training budget is not shared with the heads of the training schools. The Ministry of the *Land* controls the budget and moderates standards. The system is based on a firmly regulated partnership between professionals in the schools, the *Seminar* and the Ministry.

5. Duration of practical teaching. Although this lasts a full year longer than the one year PGCE course there is no requirement for newly qualified German teachers to attend induction courses which complement or complete their initial training.

In Germany there have been various local attempts to bring more flexibility into this traditional two-phase system. One such was the *Gesamthochschule* initiative (comprehensive university) in North Rhine Westphalia and Hesse, which re-introduced practical school placements to Phase 1. This included the unprecedented insistence that future *Gymnasium* teachers undertake practical school experience.

The same two *Länder* pioneered the *Stufenlehrermodell*, in the early 1970s, in which teachers are trained not for specific school types (a perennial problem of the tripartite system), but for broadly-banded age-groups or levels (*Stufen*). Most radical of all was the project put forward in 1971 by the Universities of Osnabrück and Oldenburg in Lower Saxony called *Einphasige Lehrerausbildung (ELAB)* ('One-phase teacher education'). Its main aims, as Pritchard (1993) states, were:

1. To contribute to the integration of theory and practice;
2. To help shorten study periods;
3. To help overcome traditional vertical divisions within the teaching body;
4. To develop a form of teacher education based on universal criteria but differentiated according to the tasks of schools and the ages of their pupils (pp. 363-364).

This was a particularly significant development in that it "completely removed the division between the academic and the professional phases of teacher education and developed a concurrent model terminating in one single examination which, when passed, gave qualified teacher status" (p. 36).

Amongst other distinctive features was the school relationship, based on a commitment in which university staff undertook the duty of school supervision and schools provided specially-selected school-based contact teacher-tutors, who guided the training process from day to day.

England and Wales

Developments in initial teacher education in England and Wales have been numerous, hasty and generated more from politically doctrinaire motives than from solidly researched educational bases. A comprehensive research project (The Modes of Teacher Education Project, funded by the Economic and Social Research Council in England and Wales) set out to rectify this situation and systematically to evaluate the effectiveness of existing teacher-training courses and to characterise the nature of teacher education (Whitty et al., 1992).

The move to greater centralization and government influence ushered in with the National Curriculum in schools has its counterpart in Circular 9/92 (Department for Education, 1992) announcing the shift towards more school-based training. This has been accompanied by a number of initiatives to provide alternative routes into teaching. The Licensed Teacher Scheme is designed for graduates in shortage subjects, who wish to be trained primarily in the classroom,and receive pedagogical training via distance learning and/or at an HEI. The Articled Teacher Scheme appoints students as members of the teaching staff on a reduced salary, and again students are trained for some of the time at an institution over a two-year period.

The development of undergraduate courses in academic disciplines and education in a modularised format, similar to the B.Ed., along the lines of the German model remains a possibility for the future.

Currently, there remain two distinct routes into teaching in England and Wales. The first is a concurrent four-year course, combining curriculum, pedagogical and Educational studies together with substantial practical teaching experience. This leads to the B.Ed. degree and is favoured by intending primary school teachers. The second is a consecutive course, consisting of a three or four year academic programme at a university, followed by an intensive one year (36 week) pedagogical and practical course called the Postgraduate Certificate of Education (PGCE).

The consequences of a PGCE teacher-training course that consists of, typically, a 24 week school-based component and a 12 week university-based component are far-reaching. These have to do with issues of partnership between training institutions and schools and the changing roles of HEI and schools, mentoring, competences, assessment, transfer of resources. Concerns about the amount of training mentors have in order to train students, the time to carry this out effectively, and the risk of "cloning" are all in need of fuller evaluation. Partnerships were instituted in 1993 and are still unproven in their development.

Conclusions

It would seem then that the French and German systems are moving in different, even opposite, directions to the English and Welsh. Whilst the French are strenuously attempting to increase the participation of the university in teacher education, in England and Wales there is a process of marginalising it. The Germans retain a high degree of academic excellence plus a professional training of suitable length, rigour and practical quality. The role of theory is acknowledged and respected in the "European model" (Taylor, 1990), but suspected and regarded as something of an irrelevance in the English and Welsh. The notion that subject competence is the same as professional competence, that persists particularly in the grammar school sector, however, remains a feature of a somewhat static German tradition.

Both the French and the German systems grant high status to their teachers and invest accordingly in their pre-service training: five years in France, a minimum of six years in Germany (in England and Wales, as a rule, four). Vital common problems remain, concerning roles and relationships, technical competence and reflective professionalism, and funding. There is clearly much to be learned from the comparative approach and, in the ever-shrinking "global village," we would do well to return to the words of Sir Michael Sadler from 1900 and reflect upon whether "some of the things ... seen abroad were not an improvement on what is ordinarily done at home" (p. 311).

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ERSATZ* TEACHERS FOR BRITISH AND AMERICAN SCHOOLS? 1979-94

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The confrontation between John Patten, Secretary of State for Education, representing the British Government of Conservative Prime Minister John Major, and the National Association of Head Teachers, including its President Mrs. Pat Partington, representing the 'educational establishment,' in Newcastle on 2 June 1993, was exciting and emotional, as were the related newspaper reports. Mr. Patten focused on four points: (1) the national curriculum, (2) standard attainment tests (SATs), (3) teacher performance pay, and (4) changes in teacher preparation programs. The first two points are acceptable to the 'educational establishment' in principle, but not in detail. The 'educational establishment' opposes performance pay which it understands private business and industry has long since abandoned in favor of cooperative schemes; it also opposes the Government efforts to undermine the Leftist influence of colleges and universities by siting teacher preparation programs in the schools. Will the result be ersatz teachers for British schools? Will America follow Britain's lead?

An exhorting buzzer sounded. We all rose to stand in honor of the office of British Secretary of State for Education John Patten at the 92nd Annual Conference of the National Association of Head Teachers (school administrators) in the Civic Center at Newcastle-upon-Tyne on the morning of 2 June 1993. He greeted my wife with a pleasant "Good morning!" as he processed down the west aisle. He had been welcomed as an invited speaker. He made his speech. His comments were greeted with hisses, heckles, boos, and sneers; his message dismissed with derisive laughter. Hardly anyone stood as he beat a hasty retreat. Those who did were taunted by cries of "Rubbish" "Shame!" and "Sit Down!"

Headlines ranged from "Shame of our Head Teachers" by the conservative Daily Mail to "Heads Heap Derision on Patten" by The Guardian on the left. Sunday Express opined: "He may be wrong but we let teachers down" while reminding readers, "There is always a hidden agenda" (Stevenson, 1993, p. 6).

"On Monday, The Independent reported, "The Government will today counter-attack the teacher unions...by publishing the English (exam) papers for 14-year-olds so that parents can judge for themselves. John Patten...said on the BBC Television "Breakfast With Frost" programme: 'I think most people will look at the papers and wonder what on earth the fuss was about'"(Hughes, 1993, p. 3). The Daily Telegraph warned, "The boorish treatment he (Patten) received from head teachers last week has begun to shift public opinion back in his favor" (Marston, 1993, p. 6). Writers in The Times added, "[although his]...pronouncements have been grounded not in evidence but in an ideological assault on the training institutions, pilloried along with local education authorities (LEAs) and schools inspectors as the 'educational establishment'...(in an) ideological vendetta....Praise at last (could come) even (to) John Patten" (Alexander, 1993, p. 29).

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*Ersatz: A transparently inferior imitation

Policies people don't like. "Politicians have to accept that if they dish out policies people don't like, they will get this sort of reaction," said David Hart, General Secretary of NAHT, the 33,000 strong union of heads and deputy heads" (Massey, 1993, p. 2). The push for school reform in Britain rises from much the same concerns as in the United States. On both sides of the Atlantic many people are fearful that their country is losing in the global economic race.

In America this fear engendered no fewer than seventeen reports on education reform in the four year period 1983-86. Responsibility for reform devolved on the National Governors' Association--an out-growth of the Conant-led Carnegie Foundation's post World War II Educational Policies Commission (Educating America, 1990). This pursuant to the Tenth Amendment of the United States Constitution, which makes education the responsibility of the respective states. Actually the nation's 15,367 school districts typically get only 7 per cent of their funding from the national government. Eventually, the national government announced goals through America 2000 the product of former Governor of Tennessee then Secretary of Education Lamar Alexander of the Republican Bush administration. This program was slightly modified and republished as Goals 2000 by former Governor of South Carolina now Secretary of Education Richard Riley of the Democratic Clinton administration (Jennings, 1993).

In England and Wales 80% of school funding for the 105 local education authorities (LEAs) comes from the national government. Education policy is partisan and, during the current Conservative regime, deeply ideological. Under Prime Minister Margaret Thatcher and now John Major, the government, i.e., the party in power, has confronted fears of loss of competitiveness in the global economic race through 15 pieces of legislation since 1979 establishing, or at least proposing among others: (1) A National Curriculum, (2) standard attainment tests (SATs), (3) teacher performance pay, and (4) changes in teacher preparation programs. Some of the government's, and hence John Patten's, policies concerning each of these are policies people in the 'educational establishment' don't like!

"The National Curriculum was introduced in 1989. It consists of core subjects in English, mathematics, science and specified foundation subjects such as history, geography, technology, music, art, physical education, and (for secondary students) modern foreign language. In Wales, Welsh is also a core subject.... The teaching profession, especially the unions, has supported the policy that curriculum is a local educational responsibility" (Gutek, 1992, p. 109). None-the-less, the national curriculum was widely accepted until the Government detailed and prescribed the content in the various subjects, and trials of the individual subject syllabuses severly overloaded teachers inevitably damaging the quality of teacher effort (Stevenson, 1993).

The content and pace of curricular reform revealed a lack of consultation and planning. The curriculum was very rushed. Rapid reforms strained relationships. Attempts at reconciliation came too late. In her remarks at the 92nd Annual Conference NAHT President Mrs. Pat Partington, supported by frequent, vigorous applause, told Patten, "Many of the things you are doing are wrong, unworkable, and not properly thought out. You are creating a sense of neglect and implied indifference. We find a situation where teachers, parents, and governors (school board members) have united to say that enough is enough!"

Mr. Patten, recognizing the lack of full-scale and widespread meaningful policy discussions on education, and ignoring the fact that much positive progress and agreement on a national curriculum had been set back by a year-long avoidance of the issues, tried to sum up Government promises to restudy the curriculum (Meikle, 1993). Ignoring "Question!" and "DEBATE" calls from the floor, he merely reminded the heads that Sir Ron Dearing, who had replaced Lord Giffiths at SEAC (School Examination and Assessment Council), had recruited a task force of six experts who would undertake a "wide-ranging and independent review of the national curriculum and make a first report in July!"

Does Sir Ron trust the profession and accept that teachers, heads and deputies share a common interest with parents and the Government in effective schools? Will he consult rather than insult? Will he build from the ashes of mistrust and confrontation (Kidd, 1993)? Time will tell!

Standard attainment tests (SATs) are held in common contempt by the 'educational establishment,' not out of rejection of assessments of progress and reports to parents--annual written examinations of student achievement have been part of the British tradition in education since at least 1862 (Gutek, 1992), but because they are flawed, inaccurate, lack validity and are seen as part of an overly prescriptive, cumbersome, ill-thought-out, inadequate, unfair, and misleading government program (Dean, 1993).

At the Western Wisconsin Education Association conference last year, my colleague Professor Burt Altman who had studied the national curriculum and the related national system of testing, reported that a teacher of 30 seven-year-olds who conscientiously made all of the prescribed and recommended group and individual assessments--some of which involve excellent techniques and materials--would have no school daytime left for instruction and other activities! A French commentator on BBC Television said that he could understand the intensive use of diagnostic tests at the beginning of the school year, but could not defend their use at the end when, through personal interaction and observation of their work teachers knew students much better than any testing instruments could possibly ascertain.

In May 1993, Vivian Thomas, Head of Birchgrove Comprehensive Secondary northeast of Swansea, asked one of his Deputies to pick out two science tests for him to personally review. The head marked each "B" after which the Deputy revealed that the student test writers were the best in the school, and one of the worst, respectively, demonstrating, to his satisfaction, the tests failure to discriminate! Nowhere in its pronouncements did the Government recognize the importance of publishing background data, nor before and after test results, so that parents and others could develop an understanding of value added through teacher efforts in the schools.

Evidence of the unacceptably low quality of tests mounted. By June the testing programme was in tatters. The chairmen of the two School Examination and Assessment Council committees had resigned. Patten had been forced to make a Parliamentary statement cutting back the tests for 1994. The three main teachers unions had announced a boycott of the national curriculum tests (Sweetman, 1993). At the NAHT Conference, Mrs. Partington told Patten, "You have made it impossible, by use of law, for us to join the teachers boycott of tests this summer, but the message must be made clear that many of us support them

morally and in principle." In face of howls of abuse, Patten insisted that "Without a testing regime or publication of results, neither government, taxpayers, nor the wider public will have any idea of what is happening in schools and there will be little justification for education expenditure." Then he added, threateningly, "Nothing is ruled in and nothing is ruled out for next year in terms of action to ensure that tests are taken. We may have to take some action, perhaps change the law." Later, during the press conference (which I was allowed to attend), he admitted that the boycotting teachers are employees of the local schools, and only they could decide whether to dock their wages or take other punitive actions!

On June 7 only a handful of schools started the scheduled compulsory exams for 14 year-olds. The most widespread and politically contentious industrial action since the miners strike, halted testing for all but a tiny minority of the 650,000 students scheduled to sit for the first exam in English. Patten announced that test papers would be published immediately after they were scheduled to be taken. One hundred twenty eight leading industrialists, academics, and politicians rallied behind Patten in a newspaper advertisement placed by a traditionalist pressure group named the "Campaign for Real Education" (Preston, 1993). The political beat goes on!

Teacher performance pay based on merit ratings is, and long has been, the flash point of warring contention between righteous, reforming Rightists and loving, labor Leftists. The emphasis on what teachers do, instead of the results they achieve, seems to be based on a poorly-grounded, widely held, and long honored ethic. Fifty years ago my mother claimed, "no pain, no gain!" Forty years ago a retired labor leader in a lodge in Madison, Wisconsin advised me "Never strike for more pay for doing the same work tomorrow as you did yesterday for less. It's unseemly and will turn the public against you. Strike for what everyone sees as virtuous: safety, health, and retirement benefits!" Twenty years ago, President Kennedy said, "We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard!" Thirty years ago I rationalized my leaving public school teaching by citing salary schedules that equally rewarded the hardworking and the slothful. Only late in life, have I learned that we are rightly compensated for the value of what we produce, not for the amount of effort we put forth.

But the outdated, predominant ethic lives. Last month at a Rotary Club meeting in Swansea I asked my table companions to explain the poster I had seen in City Centre: "Sink the Tory Tests! Save education!" The head of the poverty-stricken downtown school described the test validity problem and the looming boycott. His Rotary brother, who hadn't listened very carefully, sneered, "Docking their pay a few hundred will bring the teachers to heel!"

In Newcastle John Patten touched this hot button because he understands the politically predominant ethic saying, "Pay incentives will allow schools to have a rational responsibility structure that rewards the best teachers." Mrs. Partington replied that Mr. Patten had done nothing to increase teacher's sense of security, "Where there should be optimism, I feel foreboding. I believe there is hostility which is not a symptom of gratuitous offense nor trades union dogma.... Whatever the grounds, performance pay will damage and divide schools!"

She understands, as Patten does not, that the concept of merit as a useful device in rewarding performance has been thoroughly discredited in research and practice. The practice has resulted in great bitterness, anger, and frustration with a concomitant deterioration of morale among teachers. Performance rating is contrary to Total Quality Management. W. Edwards Deming, the renowned expert on productivity and the chief advocate of TQM, has stated that performance evaluations "leave people bitter, crushed, bruised, battered, desolate, dependent, dejected, feeling inferior, some even depressed, unfit for work for weeks after receipt of rating, unable to comprehend why they are inferior. It is unfair, as it ascribes to the people in a group differences which may be caused totally by the system they work in.... (Annual performance evaluation) nourishes short-term performance, annihilates long-term planning, builds fear, demolishes teamwork, nourishes rivalry and politics" (Deming, 1993, p. 2).

Patten revealed ignorance of the research in private business and industry which indicates that 96% of all problems are systemic and only 4% are caused by individuals, and he revealed ignorance of the history of education as well when, during the press conference, he said he was "very sorry about my reception. Some teachers want to go back to a dark age!"

The real dark age began in 1862 when the Revised Code of Regulations established a revised version of the school grant system known as 'payment by results.' The code specified that achievement in reading, writing, and arithmetic was to be assessed at the end of each year. Each child was to work through specified standards and sustain an annual examination. The amount of the grant to each school was to be calculated according to the number of children who passed the examination in each subject and the total number of days in attendance recorded for each child (Simon, 1970).

> The determination of pass or fail was made by well paid, highly educated government officials who were not teachers. These gentlemen were given the title Her Majesty's Inspectors of Schools.... School boards and managers threatened with the loss of critical financial resources, cracked down on teachers, emphasizing achievement of the government established minimal standards, often by tying teacher salaries to the amount of the annual grant obtained through examination. The new grant distribution process was also a response to fears...that teachers were becoming overeducated and aspiring to learning (and teaching) above their station. Thus, payment by results attempted to control teachers by paying the grants to school managers and focusing on and rewarding the achievement of carefully defined and limited outcomes.
>
> What were the results of 'payment by results?'...The Cross Commission 1886-88...was established to examine the state of government supported education. Its findings...revealed a system disdained by teachers, school managers, and the inspectors themselves. Payment-by-results schools were characteristically impoverished learning environments where near total emphasis on performance left little opportunity for learning. The teacher served as an instrument for inculcating skills and information necessary for her/his students to meet the examination

standards. Lessons were, as a result, mechanical, sterile and even, at times, fraudulent.

> In 1890, after thirty years of educational control, the system of payment by results was abandoned.... In its code of 1904, the Department (for Education) described the role of the teacher to be that of assisting students according to their different needs.... A year later, the department Handbook of Suggestions for the Consideration of Teachers and Others concerned in the work of Public Elementary Schools called for unlimited autonomy for teachers (Nelson, 1992, p. 126-128).

Do the current national curriculum, standard attainment tests (SATs), and teacher performance pay policies presage the beginning of another dark age in British Education?

Changes in teacher preparation programs were announced in 1989. Generally, teachers had to complete a recognized program in teacher education offered by institutes of higher education, universities, and polytechnics. The teacher education program was a three or four year course leading to the Bachelor of Education (B.Ed.) degree. New legislation established the Council for Accreditation of Teacher Education to monitor programs for adherence to approved criteria, and the Government issued new regulations that provide for the entry into teaching of individuals who have relevant qualifications and experience but who lack formal teacher training. This provision is similar to current proposals in the United States that provide for alternative approaches to teacher certification (Gutek, 1992).

Matters came into sharper focus at the 1991 Conservative Party annual conference when Kenneth Clarke, the then British Secretary of State for Education made the following statement,

> Now is the time to press ahead with getting teacher training right. I meet too many young people who don't go into teaching because they are put off by the length of the course. Or they go on a course and then give up because they are put off by the idea of learning too much theory and not enough practice.
>
> I want to see more students actually getting into a classroom for much more of the time while they train. I want them to learn how to control a noisy class of 30 kids by actually having to do it with the help of an experienced teacher and using their training courses to sort out the problems (Furlong, 1992, p. 177-178).

Clarke proposed that students preparing to be secondary teachers by earning the one year Post Graduate Certificate of Education, after having earned a B.A. or B.S. in an appropriate discipline, should spend 80% (later reduced to 66%) of their time 'on school premises.' Resources, accordingly, should be shifted from higher education to the schools.

Clarke has since been twice elevated and is now Chancellor of the Exchequer (second only to the Prime Minister in the current government). His policies live on in the hands of his successor, John Patten, who recently announced a pilot plan under which selected schools will receive full funding for initial teacher preparation and will contract with institutions of higher education for whatever instructional services the schools decide are needed. In

Newcastle he promised to "open up new routes into teacher training to attract into the profession those who have got much to offer primary children, but who are at present effectively barred from teaching (by Leftist faculty peddling) the discredited theories of the 1960s (on race, gender, class and even anti-imperialism)!"

Clearly de-coupling teacher preparation from higher education and putting the onus on universities and colleges to make the case for their contribution, and their share of the funds, Patten at the same time insisted the new candidates for certification to teach in primary schools would be well prepared in the basics: "maths, reading, writing, and speaking," to which the audience of Heads and Deputies angrily added, "AND LISTENING!" During the subsequent press conference, Patten refused to confirm "the rumours of a Mum's Army of nongraduate, rapidly trained staff to take on teaching in the early years (Barber, 1993, p. 16)," saying that the full details will be released, in a circular, later.

At the same time the government announced the names of the first schools to take students under the new school-centered teacher preparation initiative at the secondary level. Under this program consortia of schools will be given £4,000 (about $6,200) for each of 150 students, and will be able to buy help from universities and colleges as they choose. Candidates will each be granted £3,520 ($5,450), up to £550 ($850) more than the traditional college student. The experiment will begin in September (Dore, 1993).

Ersatz teachers for British schools? Will this program of teacher preparation yield a transparently inferior imitation? Will those who appoint teachers in Britain select and retain persons certified through this program? We shall see.

The government have completed the final squaring of the accountability circle: from curriculum to student testing to teacher evaluation to teacher preparation. They have even provided opportunity for schools to escape local Leftist control by opting to be operated and funded under direct grant from the national Government. They and they alone will be credited for the system's successes and held culpable for the system's failures (Alexander, 1993).

On the basis of university preparation, personal characteristics, demonstrated competences, and experience in teaching, I hold a permanent license to teach Wisconsin junior and senior high school (secondary) students. I hold the doctor of philosophy (Ph.D.) degree in the Administration of Higher Education. My current specialties are the philosophical, cultural, and legal foundations of education. I successfully research, publish, teach, and supervise (mentor) student teachers. I have been a school board member (governor) and for the past seven years have served as a member and, successively, secretary, treasurer, vice chairman, and chairman of the Board of Trustees of the larger of our two local hospital systems. I also served as a member of the staff of the Board of Regents (governing board) of the University of Wisconsin System for eight years and as Assistant Chancellor of the University of Wisconsin-La Crosse for 18 years. I am not unique; many of my colleagues have analogous credentials and experience.

In writing this piece to report on recent changes in education policy in Britain, I have done what professors characteristically do. I attended a conference focused on educational

policy. I read reports of, and related to, that conference. I talked to and listened to colleagues. I reflected on my personal values and an apposite textual thesis well grounded in theory and practice:

> The distresses under which we labor...must be chiefly if not wholly, effects of the...injustice with which a factious spirit has tainted our public administrations.... There are two methods of removing the causes of faction: the one, by destroying the liberty which is essential to its existence; the other, by giving to every citizen the same opinions, the same passions, and the same interests.... The second is as impracticable as the first is unwise. As long as the reason of man continues fallible, and he is at liberty to exercise it, different opinions will be formed.... A pure democracy can admit of no cure for the mischiefs of faction.... In (an extensive) republic, however, the influence of factious leaders may kindle a flame within their particular States, but will be unable to spread a general conflagration through the other States" (Madison, 1878, p. 54-61).

Considering my various audiences, including some leftist members of the 'educational establishment' who haven't grown beyond the discredited theories of the 1960s, I chose material that reflects my values, including illustrative quotations, preserving the colorful words and usage of the English written by a few people in Britain, but substituted Anglo-Americanisms to aid the comprehension of some of my local readers. I studied the material as preparation for a discussion and organized it to promote my thesis.

I agreed with Professor Rasmussen that the subject matter is appropriate for post-graduate students seeking to become professional teachers who participate in the development of their profession, their schools, their students, and the society they serve. I distributed 16 pages of background reading material as the basis of a class discussion which will flow from student interests and develop in directions I lead. I WILL NOT LECTURE to students who can read much faster and more comprehensively than I can talk. Later, I will distribute this paper as a summary and basis of further study. I expect one or two of the students to eventually ask me to guide them in further study, to write one or two comprehensive exam questions, or to supervise research, and possibly the writing of a thesis or seminar paper.

These are the sorts of things that professional teachers do, and they are different in important degrees, if not in nature from the sorts of things typically done by the apprentices, methodologists, mechanics, and functionaries who will graduate from the on-the-job training program that "views a teacher as an ask-no-questions technician who has the competence to replicate the classroom recipes of others but is unable or unwilling to evaluate either these or the assumptions about human learning which they embody and so develop as a professional" (Alexander, 1993, p. 29).

Patten seems to imply that anyone can become a teacher. "You just tag along with a teacher for a while, and, in a year, Bob's your uncle, you are a teacher too" (Judy Corry quoted in Meikle, 1993, p. 23). In reality, however, the candidates in the pilot programs will be chosen carefully and prepared thoroughly. Some will eventually become fully professional

teachers who will be selected, valued, and retained by the schools. Undoubtedly many others will be ersatz teachers who through their own choice, or that of others, will not continue in education careers.

Public controversy, however, will continue. Industrial actions will be taken by unions and managements. Adjustments will be made. Successes and failures will be noted. Ersatz teachers will not be as bad as Richardson (1992) and Alexander (1993) fear. Teachers from the various preparation programs will be compared. Teachers--professional and ersatz--will enter and leave Britain, not only from and to Scotland and Northern Ireland, but also from and to nations in the European Community, the-almost-passe' Commonwealth, and the rest of the world (which is embracing federalism and becoming a republic). The ideal of society as an orderly, orthodox social hive dominated by a permanent priesthood of teachers certified as politically correct by the faculties of our universities, deplored by Gatto (1993), will not prevail. Neither the rightists nor the leftists will achieve the hegemony Phillips (1992) and Witmer (1993) fear the fractious human spirit will endure.

Ultimately the peoples' judgements will be made in terms of effects on global competitiveness and more important goals and criteria. Those judgements will be expressed through choice of schools, through school councils, and through elections, local, county, and national. In the meantime, though it may be unethical, it will be easy to "Bluff your way in education."

"Can what happened in Britain happen here? What are the indicators that the United States could be moving in this direction?" (Altman, 1992, p. 237). Can the Congress and the President make national law on curriculum, student testing, teacher evaluation, and teacher preparation in face of Amendment X of the Constitution of the United States of America?

Education embodied through schooling has long been recognized as human capital which flows in interstate commerce (Schultz,1959). Article I, Section 8 of the Constitution specifically gives Congress power to regulate commerce. In chosing between these two parts of the Constitution and interpreting any part of it relative to values voters embrace, the U.S. Supreme Court will slow, smooth, and stabilize change, but not stop it (Horwitz, 1992). When President Kennedy contemplated a $3,000 (£1985) supplement for every teacher's salary he was not dissuaded by constitutional arguments, but by political considerations: if he included private and parochial teachers, the anti-religion establishment would scream in out-rage; if he excluded private and parochial teachers the proponents of freedom and diversity would groan. The Constitution is more malleable than many political factions.

What happened in Britain can happen here! Will it? Let us examine the indicators that the United States could be moving in this direction.

A National Curriculum for the United States was recommended in the 1983 report "A Nation at Risk" and in almost every other recent reform proposal. In 1983 9% of the high schools offered that curriculum; ten years later 41% did so! Some other things have also changed: "Teacher salaries, for example, now average $36,846 (£24,728) a year, which represents an increase of 22% over the rate of inflation. Forty-seven states have toughened

their high school graduation requirements, 40 per cent of the schools have lengthened their year and...per-pupil spending has risen by a remarkable 90.3 per cent--more than 50 per cent faster than the cost of living" (Norris, 1993, p. 12). But the effects of these changes are not impressive; research reveals very little relationship between these factors, curricula and learning (Bracey, 1993).

While neither the Republican America 2000 nor the Democratic Goals 2000 is a national curriculum, each state has an official curriculum and related high school graduation standards. Diversity between and within states is the general rule, as is parental and teacher ignorance of curricular standards. Wisconsin has twenty legally enforceable standards many parts of which most of our education faculty could not identify, much less describe. We live in a school world of almost unlimited autonomy like that called for in the 1905 "Handbook of Suggestions for the Consideration of Teachers and Others Concerned in the Work of (British) Public Elementary Schools" (Nelson, 1992, p. 128).

To be sure, some observers see the basis of a common curriculum in the fact that 22 of our states have adoption systems which produce official, state-approved lists from which local school districts and individual teachers select their textbooks. Others note the variety in these almost endless lists and in the many curricular guides, teacher activities sheets, student workbooks, and all sorts of other prepackaged instructional materials that suffuse American schools. While Apple (1990) sees these as ingredients of curricular political football, he and other critical theorists also contend that they are promoters of dominant-culture hegemony (Apple, 1979). "This careless use of words weakens Apple's case, for...one does not know whether he is describing realities or pursuing the associations of his Marxist terminology (Kneller 1984, p. 191)." For many reasons, the contention of "critical theory...does not seem to have generated a momentum among ordinary people....This is true not only in education, but in the wider society as well" (Ozmon and Craver, 1990, p. 333).

Nonetheless, there is an amorphous common culture curriculum in the United States. And there was movement toward a British-style national curriculum as well. But a factious spirit lives in America (Shanks, 1992), diversity and pluralism are now on the rise (Witmer, 1993) (Pinkerton, 1993). The latest law, adopted five years after the 1989 agreement between then-President Bush and the nation's governors, authorizes a small amount of money, sets voluntary standards, specifies "that none of these requirements for standards is meant to impose on the states or on local school districts an unfunded federal mandate" (Jennings, 1994, p. 2), and even "says federal funds could not be used by states or local school districts to adopt policies that prevent voluntary prayer and meditation" (House, 1994, p. 2A). "It's really inconceivable that any state that applies won't get funds," concludes Mike Cohen, an advisor to Education Secretary Richard Riley (Five, 1994, p. A2).

Wisconsin is one of the 50 sovereign states for which the federal Constitution of the United States, in Amendment X, reserves the power to control education. It has twenty legally enforceable standards, 10 learner goals, and 17 learner outcomes. "These outcomes are not mandated by the Legislature or the Department of Public Instruction. School districts are not required to use, adopt, or adapt any or all of the outcomes. The outcomes are offered to encourage discussion at the local level of what is important for students to know and be

able to do. They can be added to, deleted from, or modified to meet the needs of each district's students" (Wisconsin, 1994, p. 2).

The Scholastic Aptitude Test (SAT), which was recently renamed the Scholastic Achievement Test, and the more valid American College Test, are regularly used across the United States to predict the higher education success of students who have low high school grade-point averages, not to measure attainment of curricular goals, nor are they used to qualify for high school diplomas and certificates. Students who do not intend to enter college, and those with very high secondary school grades usually do not participate. Nor do all students participate in any other national testing program. Studies by the International Association for the Evaluation of Educational Achievement are based on very small but valid samples.

> After declining modestly in the 1970s, SAT scores have risen especially for racial minority students. Basic math proficiency appears to be increasing for every ethnic group. Basic reading skills are also up for 17-year-olds.
>
> The dropout (school leaving without completion of diploma requirements) rate among black Americans has fallen dramatically in the past 20 years, from 28% to less than 15%.
>
> The high dropout rate among Hispanics, which hovers around 35%, reflects the large number of immigrants who come to the United States as dropouts and join the work force.
>
> High school and college completion rates have risen broadly since 1940. Today seven of every eight Americans aged 25 to 29 have obtained a high school diploma or its equivalent. One in four Americans has at least a four-year college degree--the highest rate in the world" (Educational, 1993, p. A10).

Although American students do not fare well in international math and science comparisons, they rank near the top in reading (Bracey, 1993) and lead the world in creativity.

America 2000 was based on a bipartisan pact between President Bush and the 50 State Governors "to develop voluntary standards and American Achievement Tests...to allow teachers, students, parents, and communities to determine whether they were aiming high enough and whether they were making progress" (Ravitch, 1993, p. 768). In 1992, the newly established National Council on Educational Standards and Testing, a 32 member bipartisan body, recommended the establishment of voluntary national standards in key subjects but opposed the development of a single national examination. Using the work of the National Council of Teachers of Mathematics as a model the U.S. Department of Education made grants and contracts to launch national standards projects in physical science, history, art, civics, geography, English, and foreign languages.

Staying within the letter of the law establishing the department, which states that it shall not supervise, control, or direct the curriculum of schools, and repeatedly failing to

get any funding for test development from the strongly hostile U.S. Congress, it left decisions about how to teach to the wit and ingenuity of teachers, how to test to the wisdom of the respective states (Ravitch, 1993), and the development of the American Achievement Tests to assessment experts.

Starting with the State of New York Regents examinations, under the leadership of Melvil Dewey in the late 19th century, and more recently the States of Texas and Florida, many states have established minimum competency tests that students must pass before graduating from high school. The law in 42 States requires regularly scheduled achievement tests.

> Nor does the testing craze start only at the first grade. About half of all 4- and 5-year-olds will also be tested to determine kindergarten and pre-kindergarten placement.... The National Center for Fair and Open Testing estimated that at the very least more than 100 million standardized tests were administered in public schools in 1987" (Sadker and Sadker, 1991, p. 524).

Even so, the United States does not, and will not soon, have national student testing on the British scale.

Teacher performance evaluation has been introduced in 39 of the states despite the Deming findings. The practice continues even though "less evaluation of teachers by principals (heads and deputy heads) is associated with higher reading scores" (Bracey, 1993, p. 497) and other school outcomes. The Nation at Risk panel explicitly recommended that performance be the basis of teacher pay, and many school boards (governors) agree. Rejecting pay based on student performance, school outcomes, teaching assignments, and individualized productivity plans, many states base teacher pay on competency indicated by National Teacher Exams (NTE) (or their equivalents), while many school boards base teacher pay on performance evaluations by principals, and a few base teacher pay on performance evaluations by peers.

> Since 1980, many states have introduced requirements that prospective teachers pass some form of minimum skills test in reading and language, math, subject-area specialty, and or professional knowledge.... A 1987 study reported that passing rates...varied from 55% to 95%.... In 1985-1986 the Florida Department of Education decertified thirty-two teacher-training programs because less than 80% of their graduates passed the statewide teacher certification exam. The Arkansas legislature enacted a law in 1983 specifying that all teachers in the state must pass an academic skills test. This law made Arkansas the first state to require experienced teachers to pass a basic skills test. Texas followed in 1985, and Georgia in 1987.... Scores on standardized tests such as the NTE do not correlate well with subsequent on-the-job measures of teaching effectiveness.... [However] many proponents...argue that recent research has provided information sufficient to...allow for creation of more valid exams" (Ornstein and Levine, 1992, p. 27-29).

Most promising among the alternatives is a series of leading questions and an interviewing technique developed by Martin Haberman of the University of Wisconsin-Milwaukee that elicits responses that, expertly interpreted, indicate whether the subject will be teaching in a large urban school system three years hence. The National Education Association (NEA) (formerly dominated by administrators but now the largest teachers' union) rejects almost all merit pay alternatives, while the American Federation of Teachers (AFT) (the more militant professional union)

> ...is willing to entertain incentive proposals as long as there are sufficient safeguards in the evaluation procedures and so long as monetary awards do not compete with salaries or pay hikes for all teachers. Where merit plans have been tried, both organizations contend that teachers did not agree with administrators on the teachers selected for preference pay. The NEA and AFT question whether objective performance standards can be implemented, and both fear that merit pay will lead to politics and patronage rather than improved pedagogy" (Ornstein and Levine, 1989, p. 55).

To encourage teacher productivity, the AFT president contends the national government should provide bonuses of as much as $15,000 (£9,700) per teacher in 10% of the nation's schools that show the most improvement (Shanker, 1989). I endorse the proposals of teachers and faculty who want to be evaluated, as members of site-based teams or departments, in terms of value added, rather than as individual technicians who supervisors micro-manage on a day to day basis. Such evaluations need not devolve to a replay of the British payment by results system. Assessment is much improved over the techniques used in the nineteenth century. Will the United States develop a system of teacher productivity pay based on improvements in school outcomes? Probably not, but the possibility is not unthinkable!

Ersatz teachers for American schools have been part of our history at least since schoolmarms 'kept school' on the western frontier that well-qualified professionals stayed clear of during the 18th and 19th centuries. Indicators of just how far we've come in seriously promoting good preparation, competence, and professionalism include (1) the National Council for Accreditation of Teacher Education (NCATE) decision to withhold full accreditation from Carleton College and the University of Wisconsin-Madison, (2) the establishment of the National Board for Professional Teaching Standards to 'board-certify' teachers, and (3) the proposals to eliminate "undergraduate programs in education and the transfer of formal training to the graduate level" (Rippa, 1992, p. 310). None-the-less emergency, temporary, and alternative teacher certification continues to meet needs in shortage disciplines like special education, industrial education, educational media, computer science, etc. and in places well-qualified professionals stay clear of: now urban, as well as, rural poverty-stricken, crime-ridden districts. In the early 1990s, Admiral James D. Watkins, Secretary of the U. S. Department of Energy, was endorsing the preparation of more scientists and mathematicians while his department was operating an alternative teacher certification program whereby unemployed scientists, mathematicians, and technicians were becoming certified teachers without completing the regular education program (Tanner 1993, p. 296).

School-Based Teacher Education has played a varying role in the preparation of teachers for America since the apprenticeship systems dominated colonial days. Beginning in 1965 under the Teacher Corps, school-based teacher education has been centered in large cities that have great difficulty attracting and holding teachers in urban poverty-stricken, crime-ridden settings. Prepared for certification only in specialties with excellent prospects for employment, almost all candidates have completed a bachelor's degree with an overall grade-point average of at least a 2.5 grade point average, a 2.5 GPA in their specialties and have passed state-mandated basic skills tests before admission to the programs. Local universities typically provide general consultation, foundational theory, and specific instruction on classroom research. Using highly selective Haberman interview techniques to choose candidates who will persist for three or more years, these programs have produced a small, steady stream of excellent, new teachers (Dill and Stafford, 1994).

"Teach For America" is a recent example, on a nationwide basis, of efforts to bring youthful idealism into public service at the points of greatest need. Designed by the youthful and enthusiastic Wendy Kopp to attract recent high achieving college graduates, Teach For America spent more than $2.5 (£1.7) million that had been contributed by foundations and private corporations in 1990 to recruit, train intensively for eight weeks at the University of Southern California, and place 460 participants in urban, and 40 in rural, school districts with the grimmest and most severe problems in the nation. The program spent more than $5 (£3.4) million for 570 members in urban, and 190 in rural schools during 1991.

Modeled after the Peace Corps, amateurs who had never experienced failure were thrust into rooms full of students who had never experienced success. Some of the data were promising. For example, more than one-half of the secondary school participants were mathematics or science majors. But the data also indicated that many of the new teachers were frustrated by the physical and cultural challenges and withdrew before completing their initial two year assignments (Ornstein and Levine, 1992). One described the eight weeks of preparation at USC as a "jumble" and a "training wreck" (Schorr 1993, p. 316). All are gaining traumatic and realistic understandings of teaching. They are working very hard. Time will tell how many will become genuine professionals.

Youthful idealism lives! Real problems persist! Pragmatic solutions ensue! But in America, change in education and schooling is bi-partisan, very slow, barely noticed, and hardly remarkable!

Conclusion

This paper began as a report to graduate students on recent happenings in Britain, became a summary of indicators that the United States may be moving in the same direction, and implicitly, also became a comparative study of the educational policies of the two nations. The implicit study revealed a few similarities, many analogies, and two striking differences: (1) A difference in structure and funding, and (2) a difference in partisanship and exercise of control. In the end, there is little evidence to compel belief that the United States is following Britain's lead toward a national curriculum, standard attainment tests, nor teacher performance pay. Both nations are moving, at different rates, toward alternative teacher preparation schemes, but none need produce ersatz teachers.

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IMPACTS OF PREVAILING CULTURES UPON SCHOOL CURRICULUM

THE SCHOOL CURRICULUM AND THE WELSH CULTURAL DIMENSION

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The Historical Background

The Education Reform Act (ERA) of 1988, which introduced to England and Wales a prescribed National Curriculum, gave Wales, to a marked extent its own agenda, its own ways of tackling that agenda and according to Jones, (Jones, 1990, p. 166) an opportunity, to create for the first time ever a state school curriculum which was unique to Wales in content and context.

The Act legislated for the establishment of a Curriculum Council for Wales (CCW) and this body was given a brief similar to the National Curriculum Council in England. In Wales, statutory Orders were pronounced by the Secretary of State for Wales, who is charged with the duty of promoting education in the principality, and non-statutory guidelines were published by the CCW.

In one of its earliest publications, "A Framework for the Whole Curriculum 5-16 in Wales: A discussion paper," CCW reiterated the statutory requirement that every school was to provide a curriculum which: (a) Promotes the spiritual, moral, cultural, mental, and physical development of pupils and of society; and (b) Prepares such pupils for the opportunities, responsibilities and experiences of adult life (CCW, 1989, p. 1).

The document stated that, on the basis of these principles,

> The curriculum in Wales must aim to develop pupils' understanding of the distinctive and varied nature of the Welsh experience. All pupils have an entitlement to learn about Welsh culture and history as well as the language; the curriculum and ethos of schools in Wales will need to reflect the varied nature of the Welsh identity (CCW, 1989, p. 3).

The idea of a distinct Welsh dimension to the curriculum of both the primary and secondary schools of Wales was not a new one. For the greater part of this century the case for its inclusion has been urged in numerous pamphlets and reports on education in Wales. According to Williams, "The case for such an inclusion is based on educational and cultural grounds, both words being used in their widest sense" (1979, p. 7). Williams argued that "In our complex, modern society it is more important than ever that an individual has firm roots which will provide a sense of identity and a feeling of belonging" (1979, p. 7).

The challenge facing schools was explicitly stated in a publication of the Welsh Department of the Ministry of Education in 1952, which warned that,

> The forces of disintegration are unmistakable, powerful, penetrating and persistent. If they conquer, Wales loses the only distinction that still marks her as a nation

among nations; she will become a geographical expression and her people will indeed be marginal Englishmen (CCW, 1952, p. 35).

The pamphlet however confidently asserted that, the means exist to make any Welsh child conscious of his membership of a historic community possessing its own culture and language (CCW, 1952, p. 34); however, while this document was strong on exhortation, and provided a valuable examination of the contribution that the more specifically social subjects could make to an understanding of the historic community of Wales, it was weak on the educational theory which from the late 1950s was to change the context of curriculum debate (Jones 1990, p. 160).

The same principles were enunciated in the Gittins report on Primary Education in Wales, in 1967.

> Education should enable a child to understand and develop a loyalty to his own background. A child living in Wales should be able to experience his identity as part of a particular community and social cultural tradition--its language and history, its institutions, and its literary and musical culture...every child, whether from rural or urban background, Welsh speaking or English speaking, should have roots in his own community and be helped to realise what it has in common with the wider community in Wales....Understanding of, and affection for, his own immediate locality, community and his personal identity should form the base from which the child eventually comes to understand other communities and other people throughout the world (Central Advisory Council for Education (Wales), 1967, p. 207).

Considerable emphasis was placed, in this particular report, on children being nurtured within their own cultural background and on the school's role in widening cultural horizons so as to ensure that

> Children enjoy and draw strength from, their own social and emotional background and achieve personal identity within it, a sense of belonging, but also an ability to adapt to change, since they enter a future which cannot be foreseen (Central Advisory Council for Education (Wales) 1967, p. 207).

These reports led to aspects of a Welsh dimension becoming an important element in the curriculum of some schools (mainly Welsh-medium schools); however, the low status allocated to the language and culture of Wales by the local education authorities (LEAs) and by the majority of teachers meant that the concept was peripheral to their thinking for the greater part of a century. And, in any case, during the first half of the century, even though attendance at school in England and Wales had been compulsory by law since 1880, little formal analysis of the curriculum took place, while the second half of the century saw energies in the main being focused on the advocacy of particular teaching approaches.

The idea of a national curriculum, however offered, according to Daugherty, the unique opportunity to go beyond the generalities of many years of learned reflection on a Welsh dimension to the curriculum

> For in the process of defining such (a National) curriculum, all those involved in England and Wales have had to confront issues of language, culture and literary heritage. In England, the debate on such matters has exposed diverse views on the concept of a common culture and its relationship to the school curriculum. In Wales it is the very existence of a common culture which many regard as the central issue which has found expression in the steps taken towards a national curriculum for Wales (Daugherty, 1993, p. 4).

The ERA established Welsh as an integral part of the curriculum of all pupils from 5-16, assuring the language a place as a core or foundation subject in every school in the state sector in Wales. For the Welsh-medium schools, the legislation was essentially a recognition of the remarkable success of such schools over the last quarter of a century. For all other schools, the Act marked a significant change in the status of the teaching of Welsh.

In addition to giving Welsh its rightful place in the curriculum of schools in a bilingual country and making the language the educational entitlement of every pupil, the 1988 Act was expressed in such broad terms that it transferred decisions about how concepts of nationhood would affect curriculum content to the way other subject orders were defined.

While history was the only subject where a distinctive experience of learning in Wales was recognised (separate, though linked, working groups were established for Wales and England), the way in which the debates about other subjects developed highlighted the fact that many aspects of their study should contain a specifically Welsh dimension and that their programmes of study should reflect this. As a result, Welsh Office ministers also accepted Separate Orders for Wales, initially for geography and then for art and music.

A Curriculum Cymreig

CCW conducted a major consultation exercise throughout 1990 on issues raised in its 1989 publication. The outcome of this consultation was the publication of "The Whole Curriculum 5-16 in Wales" (1991). In this document CCW introduced its concept of a curriculum "Cymreig," a Welsh adjective it defined as "concerned with Wales." This concept included "exemplification of both the English and Welsh language cultures in the country and the whole range of historical, social and environmental influences that have shaped contemporary Wales" (CCW 1991, p. 4).

This curriculum Cymreig would have three distinctive characteristics:

1. Provision for the Welsh language (as a subject as well as a medium of teaching and learning);
2. Aspects of the curriculum distinctive to the schools in Wales. In addition to focusing on the differences of perspective and content in history, geography, music and art, pupils in the schools of Wales, through locally agreed syllabuses, experience a specific Welsh dimension in Religious Education and non-statutory themes such as "community understanding" which is a theme unique to Wales.
3. The general Welshness pervading pupils' learning experiences.

> Thus the social, cultural, economic and environmental contexts to which knowledge, skills and concepts are related in teaching and learning programmes can, and should, be concerned with Wales as well as with the wider world ... all subjects should be taught in such a way that the content is meaningful to the pupil's own experience within his/her community (CCW, 1991, p. 5).

In 1993, CCW published a further Advisory Paper (No. 18) entitled "Developing a Curriculum Cymreig" which offers a more precise definition of what is meant by a curriculum Cymreig. The document acknowledges the difficulty of such a task by drawing attention to the fact that "The great variety of...topography, history, language, occupations, social customs traditions and outlook have led to different shades of opinions and perspective" (CCW, 1993, p. 2),but nevertheless stresses "that Wales undoubtedly has its own distinctive cultural dimension which manifests itself not only in those areas of Wales where Welsh is the main spoken language of the community, but also in those areas of Wales which have become more culturally diverse" (CCW, 1993, p. 2).

In the final section of his chapter entitled "Perceptions of the Welshness of Education," Jones identifies what he considers to be distinctive about the Welsh experience. Drawing from this work and also from the reports and publications referred to above, Advisory Paper 18 (CCW, 1993, p. 3) sets out some of the specific elements which, taken together, constitute a curriculum Cymreig.

They are:

1. Giving pupils a sense of place and heritage, based on an understanding of:

the relationship between the geography of Wales and its people;
the history of Wales and its relationship past and present with other parts of the United Kingdom, Europe and the wider world;
the part played by farming and industry as shaping forces in Welsh life.

2. Giving pupils a sense of belonging, through being encouraged to:

appreciate the traditions and values of the community and the circumstances and influences which shaped them;
become informed of the way in which communities function ;
become integrated members of their communities;
celebrate the distinctive nature of the language and culture of the community and of Wales, engendering a respect for the values of other cultures.

3. Helping pupils become aware of the part played by language and literature in Welsh life, past and present by:

providing all children in Wales with access to the Welsh language and opportunities to refine their ability to use it as a medium of communication;
stimulating an awareness of Wales' literary tradition and the range of Welsh literature, including Anglo-Welsh literature.

4. Giving pupils an understanding of the creative and expressive arts in Wales through learning about:

the distinctive nature of traditional and contemporary Welsh music;
the Celtic artistic and craft tradition and knowledge of contemporary Welsh art;
technology represented in aspects of the built environment of Wales, past and present.

5. Giving pupils an awareness of the factors which have shaped the religious beliefs and practices of the Welsh people through giving them opportunities to understand:

the Christian tradition in both church and chapel and its influence on Welsh life;
the changes which have occurred and the diversity of belief in present-day Wales" (CCW, 1993, p. 3-5).

Drawing on examples of existing good practice, Advisory Paper 18 identifies contexts for introducing a curriculum Cymreig. These include not only those subjects with separate statutory orders, or locally agreed syllabuses but subjects within the curriculum which have common orders in both England and Wales.

Advisory Paper 18 argues that there are sound educational reasons for bringing in a local/national dimension wherever appropriate in these latter subjects. Thus an appreciation of the part played by Welsh people in the past in industry, technology, commerce, design, English literature, mathematics and science, can not only add to pupils' rightful knowledge, but also strengthen their sense of belonging and of ownership--which can well motivate them to higher achievements in certain fields of study. It is equally important to make pupils aware that Welsh people still make valuable contributions in many of these fields today and that the world of opportunity is there for them also.

In the Advisory Paper, CCW also suggests ways of giving pupils opportunities to understand and discuss the relevance of a curriculum Cymreig and acquire positive attitudes towards it in cross-curricular topic work, cross-curricular themes, and extra-curricular activities.

Many primary schools and some secondary schools engage in cross-curricular topic work where many of the boundaries of the traditional subject areas are broken down in favour of a more integrated approach. Most topics can lend themselves to aspects of a curriculum Cymreig, giving pupils a more complete and balanced view as the approach gives them a broader Welsh context.

To reflect the basic requirements of the ERA and the National Curriculum, schools must consider how their curricular provision shows the careful planning for the cross-curricular themes of careers education and guidance, community understanding, economic and industrial understanding, environmental education and health education.

Clearly, the community understanding theme in Wales, which replaces the citizenship in education theme in England, offers endless opportunities to show the distinctiveness of Welshness within the culturally and ethnically diverse pattern of Britain.

The National Curriculum emphasises the importance of knowledge, understanding, concepts and skills in the different curricular disciplines. The elements of a curriculum Cymreig listed in Advisory Paper 18 refer particularly to awarenesses and understanding which can be brought about by the delivery of the National Curriculum, and consequently, an essential ingredient of a curriculum Cymreig is that it has to do with attitudes and therefore, with learning that is affective as well as cognitive.

This has implications for the whole school, for the delivery of the whole curriculum, and requires that schools consider the impact of the totality of pupils' learning experiences. A curriculum Cymreig is therefore an integrative element, capable of permeating the whole curriculum and pervading the whole ethos of a school. Its distinctive characteristic is that it provides pupils' learning experiences with a specific orientation. It is not an element added on to the curriculum already being delivered, but an opportunity to contextualise pupils' learning in a meaningful and purposeful way.

Whilst acknowledging the diverse geographical and cultural settings of schools, and the difficulty of producing a final blueprint, CCW's Advisory Paper 18 (1993, p. 3) emphasises that...the development of a curriculum Cymreig in all its diversity represents an important objective for schools in Wales. There is, it is argued, a

> Welsh dimension to all our school communities in Wales, and [...] according to their different settings, schools will need to establish clear aims and policies to ensure that pupils are helped to explore the concepts of Wales and Welshness from their own particular standpoint (CCW, 1993, p. 5).

Looking ahead, it is emphasised that if schools acknowledge their pupils' entitlement to a curriculum Cymreig, all teachers will, to some degree, need to be involved in its delivery. The full support of school management and governors will also be necessary.

A Whole School Approach

As far back as 1949, the then Welsh Department of the Ministry of Education, in a publication entitled "Bilingualism in the Secondary School of Wales," argued that a school should give its pupils a dignified pride in the cultural achievements of their own people, and suggested that this had more to do with the communal atmosphere and cultural attitude of staff than with teaching competences (p. 7). The pamphlet quoted Ortega Y Gassett who argued that a fundamental principle of education was that "The school depends far more on the atmosphere of national culture in which it is immersed than it does on the pedagogical atmosphere within it" (Ortega Y Gassett, 1946, p. 38).

Williams (1979) also developed the argument that Welsh studies should be seen as an integrative element in schools, adding that "It will of course be necessary to ensure that every

member of staff is familiar with the philosophy behind such an attempt" (Schools Council 1979, p. 9).

It is by no means surprising therefore that CCW, in Advisory Paper 18, also identifies a number of steps which schools can undertake to move on from individual initiatives to the implementation of a whole-school policy which ideally is the most effective way of enabling pupils to acquire information about the society of which they are a part and to become aware of the relevance and place of that society in the contemporary world.

The Advisory Paper, however, is at pains to point out that the development of a whole-school approach needs to grow out of good practice and is a process that requires time to plan and build up.

These observations were very evident in a recent study (in which the author was involved) of 14 schools which are attempting to proceed further towards the development of a curriculum Cymreig. A selection of infant/nursery schools (pupils aged 3-7 years), primary schools (3-1) and comprehensive schools (12-18) were chosen by CCW for this project and they included both Welsh-medium and English-medium schools. One special school, catering for 96 pupils with moderate learning difficulties, provided a particularly interesting case study as it linked its efforts to develop a curriculum Cymreig with an European Awareness Project in which it was also involved. The report of this project entitled "Developing a Whole-school Approach to a Crriculum Cymreig," was published in April 1994.

The case study, School Perceptions of a Curriculum Cymreig Discussions during the early stages of the project showed that CCW Advisory Paper 18 had clearly stimulated all the participating schools to respond positively to guidance in determining their own development plans. The schools had much in common, particularly the objective of developing whole-school policies but each had also responded to those elements of a curriculum Cymreig which offered more immediate opportunities of development in their particular situations. The variations were related in large measure, although not entirely, to staff knowledge and expertise.

All schools recognised and upheld the principle that a curriculum Cymreig is the entitlement of every school pupil. While all the pivotal elements were being embraced to some degree all the schools demonstrated the importance of the elements of a curriculum Cymreig described in Advisory Paper 18 as "a sense of place and heritage" and "a sense of belonging." In a number of instances this emphasis on developing a sense of belonging focused initially on the study of the immediate locality, but the distinction between local studies and the development of an awareness of Welshness was made evident in the words of one deputy headteacher:

> These pupils have an awareness of belonging to a local community, but this needs widening. Linking it to a British context seems to us to omit something, and to deprive the pupils of sharing in a Welsh experience, and of a necessary awareness that they belong to Wales although they are not Welsh speakers.

In the case of participating Welsh-medium schools a general sentiment was expressed in the words of one primary school headteacher: "It is not enough to enable these pupils to be speakers of Welsh; they also need to be aware of a Welsh identity."

And it is significant that in these schools the curricular area to be more immediately addressed in the project was the subject discipline of history, beginning with the study of the immediate locality.

A belief expressed by several teachers, in schools where either Welsh or English was the main medium of instruction, was that the awareness of Welshness needed to be rooted and promoted in the immediate community of the school. The situation in which the pupils found themselves was their starting point, as one teacher said, "Try to make them aware of their roots and that they already belong."

This sense of belonging was, in almost all of the schools, linked to a study or knowledge of the past, both the gathering of factual information and the forming of what might be called a "memory." In some instances, the past was a learning resource offering endless opportunities for the cognitive study of such areas as technology, social habits, customs and attitudes; in others, more particularly but not exclusively with younger pupils, it was a romantic world of legend and myth.

There was a general consensus that the Welsh language should be included in the exercise, but in areas where it was the daily speech of a very small minority and possibly appeared to lack immediate possibilities, certainly in the initial stages of the developing of a curriculum Cymreig, the anxiety was expressed that the involvement of the language could give pupils the impression that developing a curriculum Cymreig has no contemporary relevance. A decision was therefore made not to include the Welsh department in the initial stages of one school's project, a project which was to be led by the Art and Technology departments.

An attendant consideration to this possible perception of the language as belonging to the past was the proclivity to posit the existence of a thoroughly Welsh community situated elsewhere, in a "more Welsh" part of Wales. This was implied by a headteacher in a school in an area where the staff expressed the feeling that they had "lost out" by having been deprived of the ability to speak Welsh.

This particular headteacher's school, however, had reacted positively to both these perceptions. It was a school where the staff had been helped to deal with the teaching of Welsh as a second language by attending a rolling programme of LEA in-service (INSET) courses designed to teach Welsh to teachers. The teachers described this course experience as liberating, and, while admitting to a relative lack of confidence in Welsh, they now felt more equipped to teach the language and to transmit a greater awareness of being Welsh. They maintained that these courses had both stimulated and enabled them to take a bolder initiative in the development of a curriculum Cymreig and that they were infused with the feeling that they belonged to the Welsh culture in a way they had not experienced before. The result of these experiences was reflected in a school ambience in which the Welsh language was given great prominence visually and an increasing presence aurally.

Some of the schools also articulated in their aims that the principles of a curriculum Cymreig were to be woven into the whole fabric of the school community and its ethos generally and were to embrace extra-curricular activities and the responsibilities of reaching out to parents and the wider community.

Evaluation of the Project

The strategies employed in the case-study schools reflect, appropriately, the different situations in which the schools are placed and their perceptions of how best to develop the concept of a curriculum Cymreig and to plan its implementation effectively.

In no case was a curriculum Cymreig perceived as an addition to the National Curriculum; rather, the schools emphasised that their experience of developing a curriculum Cymreig had enabled them to reflect upon the delivery of the National Curriculum in their schools and to give pupils' learning experiences relevant and meaningful contexts.

In all cases, the learning experiences planned in the delivery of the National Curriculum had been a subject of discussion and consideration, undertaken in most cases jointly by groups of teachers. This had engendered a spirit of purposeful cooperation and helped to lend greater coherence to the totality of pupils' learning experiences. A particular advantage, described by schools, is the way in which the attempts to develop a curriculum Cymreig had helped in their consideration and fulfilment of the requirements of the National Curriculum.

In planning the development of the work, all schools had followed the suggestion offered in Advisory Paper 18 of identifying a co-ordinator. In practice, this role exhibited variations of interpretation which, in large measure, depended upon the size and type of school concerned. In infant and primary schools, the role was undertaken by the headteacher, and, in the case of the smaller schools particularly, the function of leading fused effectively with the team spirit and collective commitment it had engendered. The thematic approach adopted in primary schools was also more conducive to integrative planning.

In the larger schools, and more particularly in the larger secondary schools, the co-ordinators had, thus far, been more involved with raising staff awareness, organising discussion groups and curriculum audits, and planning a timetable of activity. These steps accord with the guidance given in Advisory Paper 18. The task ahead is one of evaluating the work as it progresses, building upon the base already laid and continually encouraging new initiatives in the development of a whole school policy for a curriculum Cymreig.

The predominance of the elements described in Advisory Paper 18 as "a sense of place and heritage" and "a sense of belonging" in the case studies derives, to an extent, from the capacity and relative confidence of schools to tackle them. The involvement of history teachers is, perhaps, significant in several instances, particularly in the secondary sector.

In all the schools, the provision of a real and stimulating context for pupils'learning experiences is a common characteristic. In the majority of cases, the immediate environment was the starting point, rendering the learning experiences more concrete and tangible, giving

pupils a growing awareness of the relevance of their communities and the factors that have shaped them, and an increased knowledge and appreciation of their values and traditions.

The curriculum audit conducted in several of the schools revealed that some subject disciplines appear to have had less relevance than others for the development of a curriculum Cymreig. In particular, mathematics and science seemed to have made little contribution. Yet, in all the schools, the work planned for this project has, to varying extents, involved pupils' application of mathematical skills, and in some schools, skills included in the attainment targets of technology have been exercised. Clearly, the project has promoted the practice of specific subject skills in new and relevant contexts.

The concentration on a specific element of a curriculum Cymreig raises important issues, and Advisory Paper 18 refers to some of them. In particular, it states that,

> Staff development programmes will ideally aim to:
>
> (a) Increase staff confidence in their own abilities to implement it (a curriculum Cymreig) for themselves; and
>
> (b) Provide knowledge of teaching resources available, and of other forms of support (CCW, 1993, p. 39).

There are implications here for INSET programmes and for providers of learning materials. Primary schools which address a curriculum Cymreig on their own need particular support. Much can be gained from a consortium approach, or from a whole catchment approach. One case study demonstrated how staffing expertise in two primary schools (a Welsh-medium school and an English-medium school sharing the same site) working in collaboration can be mutually informing and enriching. A catchment approach adopted by a Welsh-medium comprehensive school and its five "feeder" Welsh-medium primary schools revealed how subject specialisms can be drawn upon and teaching skills shared, thus increasing staff confidence and consequently enriching pupil learning experiences.

This particular catchment approach also contributes to the continuity and progression of learning.

This sharing of expertise will also enable schools to consider the pursuit of all the elements of a curriculum Cymreig and by so doing reinforce the key message of Advisory Paper 18 that the delivery of a curriculum which is unique to Wales is dependent upon giving pupils the opportunities to focus upon all of its elements.

The case studies showed that the schools were aware that messages are often transmitted by what is called the hidden curriculum. Several have done much to develop a Welsh ethos within their walls and to project a Welsh and bilingual ethos to the community outside. The Welsh language has been given a visually prominent place, noticeably in foyers, corridors and classrooms. This not only helps to create a Welsh ambience, but is both a stimulant and a reinforcement for the learning of the language. An added feature in some of the schools is that staff members (both teaching and ancillary members of staff) are encouraged to speak

Welsh informally and incidentally in corridors and play areas. The co-operation of staff members who have learnt Welsh as a second language in this matter is heartening, not only because it adds to school staffing resources, but also because it can give the language an added relevance in the eyes of pupils.

Several schools have included in their aims for the project the statement expressed in Advisory Paper 18 that pupils should be encouraged to acquire positive attitudes towards a curriculum Cymreig in informal situations, during pastoral time and whilst taking part in extra-curricular activities. This includes developing positive linguistic attitudes (CCW, 1993, p. 39).

Some of the case studies demonstrate how schools can reach out to each other, enabling pupils to share experiences in both formal and informal social contexts, and in one case by means of links forged with a school in another country. In a world which is becoming progressively smaller because of its increasingly sophisticated means of communication, celebrating "...those features which give to Wales its own distinctive social and cultural identity" (CCW, 1993, p. 3) can be a powerful stimulant to the pupils' affirmation of identity, and give them an awareness of the opportunities which the future has to offer Wales in the rapidly changing word of the last decade of the twentieth century.

Conclusion

Daugherty has asserted that one of the most exciting features of the period since the Education Reform Act,

> has been the growing feeling in Wales that the terms of our debates should not be controlled by the language and attitudes of those whose perceptions of state education are coloured by, and relate to the South-East of England. (1993, p. 5)

Much has been achieved, during the last six years, in relation to the development of a distinct cultural dimension. At the time of writing (1994), the National Curriculum was being reviewed in England and Wales in order to render its delivery less onerous. It is to be hoped that what emerges from this review does not narrow the range of pupils' learning experiences. In Wales in particular, it is essential that the enriching experiences offered in the promotion of bilingualism and in the development of pupils' awareness and appreciation of the relevance of their communities, both in the past and in the present, are not put at risk. Such is the fundamental importance of developing a curriculum Cymreig.

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ACADEMIC SKILLS IN THE BILINGUAL CLASSROOM

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In this paper an outline is provided of themes that offer theoretical guidance for teaching second language and content-specific knowledge simultaneously. The movement from second language as a tool for communication to second language as a tool for academic achievement is looked at from two relevant fields of study: bilingual education and English as a second language (ESL). It is suggested that there may be a distinction between language for informal, interpersonal communicative purposes and language for academic purposes; however, teachers must teach both skills in order to aid students with limited English proficiency in attaining their educational goals. It is further suggested that linguistic factors are only part of what determines educational success among language-minority students. Research is reviewed concerning the transition of cognitive skills in the dominant language to the second language. Recommendations are made for language and content teachers who are working with students who do not have English as their primary language.

Quality Educational Programs for Language-Minority Students

A goal of the United States public education system has been to provide a quality education to children from all cultural backgrounds and economic classes. This aspiration will be increasingly more difficult to achieve unless educators take special measures to aid those students who do not have English as their primary language. It has been estimated that five of all students K-12 in the United States are classified as limited English proficient (LEP). In California, for example, the numbers of bilingual learners have continued to grow at a rate of 15% a year, rising to 1,078,700 in the year 1992 (Freeman and Freeman, 1993). While some educators embrace the diversity that different linguistic backgrounds can contribute to the curriculum, other teachers are unsure of how to provide quality education to students with limited English proficiency.

In the past, in some school districts, language minority students were mainstreamed into all-English classrooms without any ESL instruction or support in their primary language. This type of immersion is only successful if the school environment encourages development of the primary language (Coleman et al., 1966; Skutnabb-Kangas and Toukomaa, 1976; Lambert, 1977). Immersion without initial instruction in the children's dominant language has been labeled submersion since the children's cognitive development is often deterred until they can acquire the majority language.

English as a second language (ESL) pull-out classes are the minimum language support now funded by Elementary and Secondary Education Act (ESEA) Title VII and Title VI of the Civil Rights Act of 1964 (Donoghue and Kunkle, 1979). English as a second language has been used in conjunction with bilingual programs as well as in lieu of bilingual instruction in cases where there is a variety in the students' first languages and/or if there are no trained teachers fluent in the primary language.

Bilingual education, supported by ESEA Title VII, is based on the assumption that language-minority students have a variety of educational needs that far exceed acquiring the

English language (Milk, 1993). Transitional bilingual education provides support for the students in the primary language until they are deemed proficient in English at which time they are transferred into all-English classrooms. Although transitional bilingual programs only promote literacy in English, most school districts in the United States aim for a quick transition into English.

Maintenance bilingual programs are designed to produce students who are literate in at least two languages. Two-way maintenance bilingual programs have the advantage of producing bilingual students among minority-language populations as well as in the majority-language group. This approach has been called enrichment bilingual education since it encourages bilingualism for all students (Milk, 1993).

Regardless of the type of language support that the language-minority students receive, eventually they will be mainstreamed into all-English classrooms. This means that it is of the utmost importance for researchers to determine how to best prepare students for the shift from language-centered classrooms into all-English content classrooms. If teachers do not adequately prepare students for this change, the educational process could be interrupted. In San Antonio, for example, over 50% of the Hispanic population drops out of high school before graduation (Celis, 1994). This is compared with an overall 12% drop-out rate in the United States.

Some researchers have suggested that the most successful way of aiding the language-minority student may be to switch from audiolingual-based or communicative language programs, and use, instead, an approach based on improving cognitive language skills (Bruner, 1975; Cummins, 1983).

The Movement to Integrate Language with Content

Many language instructors are moving away from the goal of preparing students for informal, communicative tasks in English toward providing students with academic proficiency in their second language. A shift is occurring from presenting communicative language proficiency as the primary goal to presenting language as a tool for attaining knowledge-specific content. M. Saville-Troike (1984) has termed this ability to learn through the target language rather than merely communicate in it as academic language proficiency.

A leading researcher in this area is James Cummins (1980), from the Ontario Institute for Studies in Education. Cummins has presented research that implies students have two different levels of language proficiency. In reviewing the literature concerning testing of language-minority students and the research done on the relationship between language and cognitive ability, he concluded that:

1. Psychological tests assess language-minority students' present academic functioning but not their academic potential;
2. English as a Second Language immigrant students take five to seven years on the average to approach grade norms in English cognitive academic skills; and
3. Interpersonal communicative skills are very different from cognitive academic language skills.

Cognitive Academic Language Proficiency

In 1984 Cummins studied the referral forms and psychological assessments of more than 400 language-minority students. He continually found that the children were considered proficient in communicative skills while the students' academic achievement was poor. Students were often labeled as learning disabled or retarded based on tests given within one or two years of the students' exposure to English. He concluded that it took a minimum of four to nine years for students to attain grade norms in academic second-language proficiency where they would need to perform tasks such as reading and writing in the content areas.

This implies that it is important for educators to distinguish between minority language student ability to function conversationally, what Cummins calls basic interpersonal communicative skills (BICS), and their ability to succeed academically in the second language, labeled cognitive academic language proficiency (CALP). Cognitive academic language proficiency has been characterized by the ability to manipulate language with less contextual support, such as immediate feedback and negotiation of meaning, than is provided in an interpersonal, communicative situation. Due to these findings, he encouraged English as a second language and bilingual teachers to focus on academic-English skills as well as communicative ones.

Cognitive Academic Language Learning Approach

Based on Cummins' conclusions, Ann Chamot (1986) developed a program for English as a second language and bilingual educators to use in providing a transitional program for language-minority students who are moving from language-supportive programs into English-dominant programs. The Cognitive Academic Language Learning Approach (CALLA) was designed from research in cognitive psychology, curriculum development, and minority language education. She emphasized the need to shift for focusing on language learning to using language to learn. She encouraged English as a second language and bilingual teachers to teach learning strategies in the second language such as: (a) Metacognitive strategies--advanced organization, selective attention, self-monitoring, and self-management; (b) cognitive strategies--notetaking, summarizing, deducting, elaborating, and inferencing; and (c) social/affective strategies--questioning for clarification, cooperation, and self-talk.

She identified the Cognitive Academic Language Learning Approach as a transitional program between the development of communicative second-language skills and the entrance into an all-English classroom. The language component is what distinguishes content-based ESL from traditional mainstream content instruction, according to Chamot. It is important to emphasize second-language development so that content-based language instmction is not converted into a submersion program. In her article A Cognitive Academic Language Learning Approach: An ESL Content-Based Curriculum (1983), she not only outlined the importance of such an approach, but she specified skills and language patterns that should be taught in preparing the student for each separate content area. This approach has the disadvantage of preventing the language minority student from entering mainstream content classes for four to seven years, or until they achieve cognitive academic language proficiency.

Integrating Language and Content

Brian A. Mohan (1990) advocates a program for integrating language and content which takes the sole responsibility off the language teacher, and encourages collaboration between the content and language specialist. He argued that mutual support for language and content development is beneficial to the language-minority student. Basing his argument on the research done by Cummins, he concluded that language-minority students do need from four to seven years to reach grade-level achievement. They must not, however, be kept out of mainstream classes for such a long period of time. Therefore, he suggested that while language teachers are developing a teaching model based on the cognitive academic language learning approach, content teachers must also redesign their methodology. Mohan suggested that the following strategies be adopted by content and language teachers:

1. Agree on the pertinent content-specific knowledge structures and identify graphic conventions for representing this knowledge;
2. Identify and use relevant graphics in content-course material and create graphic overviews of difficult material; and
3. Relate knowledge structures to grammar, vocabulary, and patterns of discourse in reading and writing.

Mohan also recommended using cooperative-learning activities, and developing languagesensitive ways to support language-minority students' work on content tasks. Unfortunately, in a recent survey of content teachers (Gunderson, 1985), less than 12% said that they modified their instruction for language-minority students. Over 80% were unwilling to do so since they believed that English language proficiency should be a prerequisite for mainstreaming language-minority students.

Criticisms of Cognitive/Academic Approaches

Although many researchers support cognitive academic approaches in second language instruction, the criticisms do exist and can be categorized into two main arguments. Researchers M. Canale (1984) and B. Spolsky (1984) argue that linguistic factors, communicative or academic, cannot be separated from each other. Therefore, the BICS/CALP distinction provides us with a false dichotomy. Others, such as Wald (1984), argue that linguistic factors are not the only factors, not even the most important ones, involved in the academic success of language-minority students.

Spolsky asserts that Cummins provided us with a false dichotomy when he claimed that basic interpersonal communicative skills are developed before cognitive academic language proficiency. Canale provided support for this criticism by citing evidence that certain students do well on academically-oriented second-language tests but do not do well on tests requiring use of the second language for authentic communication. This implies that basic-communicative skills do not necessarily come before cognitive academic ones. He adds that language proficiency is only one of the many complex and little understood cognitive systems that interact in predicting a child's success in an academic environment.

Wald pointed out that sociological evidence suggests that wherever a socio-economic class structure exists, it is reflected in language distinctions, and that the educational system values "literacy skills" which are actually the institutionalization of the power-holders' language patterns. Therefore, Cummins' cognitive academic language proficiency is actually the acculturated literacy skills required by the majority in a given society. Wald argues that this majority/minority mismatch is what actually accounts for the negative evaluation of the minority student academic achievement.

Response to Criticisms of Academic Language Approaches

Cummins (1989) emphasized that the concept of academic language proficiency was developed in order to protect language-minority students who had academic difficulties from being diagnosed with innate deficiencies in themselves or in their cultural background when in actuality the problem was linguistic in nature. By identifying a difference between academic and communicative proficiencies, Cummins provided minority-student advocates with a weapon for combating practices which perpetuate a policy of blaming the language-minority students for their academic difficulties. Therefore, he was not attempting to imply that all language programs must focus purely on academic proficiency, but, instead, that academic factors must be taken into account when assessing a language-minority student.

Concerning socio-economic aspects of academic achievement, Cummins emphasized the importance of combating institutionalized racism. In order to support the language-minority student's primary language and culture, Cummins outlined four areas of concern for educators, only one of which is linguistic. The other three areas are: community participation, pedagogy, and assessment. He recommended that teachers take steps to provide support for the student in all four areas.

Recommendations for Teachers

Linguistic Incorporation:

Provide materials, visuals, and activities in the students' primary language.

Community Participation:

Encourage acceptance of the minority students' culture and local community.

Pedagogy:

Modify the complexity of the language so that language-minority students can understand and participate.
Use a variety of activities, visuals, and nonverbal clues when teaching.
Ensure collaborate between the language specialist and the content specialist.
Decide on the literacy skills and content material which should be taught.
Encourage interaction among students.

Assessment:

Utilize assessment as a determinant of how academic difficulty

is a function of interactions within the school context.

Conclusions and Implications

Based on the literature, it can be concluded that:

1. Although there is not a strict distinction between informal, interpersonal communicative and academic language skills, it does appear that certain cognitive skills are necessary for language minority students to achieve their academic goals;
2. Language-minority students should be provided with both communicative and academic skills in the second language;
3. Language and content teachers should work together in teaching communicative and academic skills to LEP students;
4. Linguistic factors are not the only variables involved in predicting the academic success of language minority students; and
5. Language and content teachers should work to encourage pride in the language - minority students' primary language and culture in order to encourage academic success among this group of students.

In order to aid language minority students in achieving their academic goals, educators must focus on linguistic and cultural support in the language and the content classrooms. In order to facilitate the acceptance of the language minority students' linguistic and cultural background, Freeman and Freeman (1993) have recommended the following activities for the language and the content teacher. First, ensure a print-rich environment that reflects all of the languages in the class. Second, provide the school and classroom library with professional and student produced books, magazines, and other content materials in the language minority students' primary language. Most importantly, encourage the use of the students' dominant language through reading and writing acthities with aides, parents, and other students who speak the students' primary language.

In this review, the focus was on outlining the development of theoretical guidelines for instructors interested in preparing language-minority students for entering all-English classrooms, as well as supporting their linguistic and cultural background. In order to better assess the value of the cognitive academic language proficiency distinction in language methodology, it is important to evaluate the success of programs which teach language-sensitive cognitive, metacognitive, and affective skills in the language and content classrooms. It is also important to determine the viability of collaborative programs between language and content specialists. It is hoped that these topics will continue to be explored, since the issue of how to prepare language-minority students for educational success will only become more important in the years to come.

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MEETING THE CHALLENGE OF NEW DEMANDS UPON SCHOOL CURRICULUM

MODELS FOR TEACHING AND LEARNING CROSS-CURRICULAR THEMES AND COMPETENCES

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Elements of the Curriculum

Most nations or regions specify a curriculum for secondary schools comprises a number of separate subjects. Each of these subjects have certain distinctive features: a structure for describing and explaining; a set of tools and skills; and a cultural, social and emotional dimension. In addition, each subject differs in the balance of importance attached to each of these features at various stages in learning.

In England, these subjects are English, mathematics, science, a foreign language, design and technology, history, geography, music, art, physical education and religious education. In Wales, Welsh is added as a twelfth subject. The Educational Reform Act of 1988 provided for a National Curriculum which made compulsory the teaching and assessment of large bodies of prescribed learning in these subjects to all youngsters up to age 16, though it did not prescribe how they should be taught. It was soon recognised, however, that the amount and complexity of the required content in the initial statutory orders was creating a heavy burden on teachers and students. Since then, successive revisions have bowed to pressure to reduce the degree of prescription and to simplify the structure initially specified by the various separate subject committees.

It was recognised by the government bodies (the National Curriculum Council (NCC), the Curriculum Council for Wales (CCW) that the aims of the ERA would not be met by these subjects alone (NCC, 1989). Subsequent publications have therefore recommended that students be taught various "cross-curricular" matters--classified as dimensions, themes and competences (NCC, 1990b; CCW, 1989, 1991). Their content was not prescribed statutorily, other than those aspects contained in the programmes of study for various subjects--a collection of matters which lacks cross-curricular coherence (Nixon, 1991). Schools were thus free to decide the content and process to be taught. Nevertheless, these elements were to be a part of the "Whole Curriculum" to which all youngsters from age 5 to 16 years are entitled. It was not clear, however, how this part of the entitlement was to be implemented when neither the list of elements, nor their content, was specified.

The cross-curricular dimensions (such as equal opportunities, multicultural education, and the curriculum Cymreig in Wales) are well covered in the literature, and will not be discussed further here.

Cross curricular themes are topics which clearly contain their own specific knowledge, skills and concepts, but which do not fit neatly into the compulsory subjects. The ones identified as a basis were:

Economic and industrial understanding (EIU)
Health
Careers
Citizenship, Community Understanding (Wales)
Environment

Cross-curricular competences (or skills) may be considered as tools which are applicable in a number of disciplines. Those identified are:

Communication
Numeracy
Information technology (IT)
Problem solving
Study skills
Personal and Social skills (England)

Documents advising schools on how to implement these requirements through integrating them as far as possible into the statutory curriculum appeared (NCC, 1990a; CCW 1990), closely followed by lengthy guidance from expert bodies indicating the extent of the content and approaches to teaching expected in each of the themes. These were unhelpful to secondary teachers struggling to adjust to the demands of the National Curriculum in their own subjects, and primary teachers can hardly have had time to even read them when faced with a steadily growing pile of statutory orders and non-statutory guidance for the ten subjects, all of which they would have to use in planning their teaching.

We should note that advice to schools in Wales on the coherence of the whole curriculum took as its basis Her Majesty's Inspectorate's earlier division of the curriculum (HMI, 1985) in terms of areas of learning and experience:

Aesthetic and creative
Linguistic and literary
Mathematical
Moral
Physical
Scientific
Spiritual
Technological

CCW (1989, 1991) adapted these (notably adding 'social and environmental') and recommended that teachers should consider the contributions of subjects, dimensions, themes and competences to these more fundamental elements. This framework does not appear, however, to have been used widely by schools.

More detailed critiques of the historical, philosophical and political aspects of development up to 1992 of the National Curriculum in England and Wales can be found in, for instance, Hargreaves (1991), Nixon (1991) and Williams (1992). In 1993, the government decided that a change had to be made in response to teacher opposition to the testing

arrangements. A new curriculum supremo, Sir Ron Dearing, was appointed and asked immediately to consider how the National Curriculum could be 'slimmed down', so that tests could be simplified and schools would have more choice in what they taught. Given this brief, it is not surprising that the interim report (Dearing, 1993a) made no mention of the cross-curricular elements, except for highlighting "health and careers" and "mastery of the basic skills" (p. 32) amongst the matters that should be covered in the time freed. The final report (Dearing 1993b), which was accepted immediately by the government as the basis for revision of the subject orders, goes little further, except for implicitly specifying the 'basic skills' through repeated reference to literacy, oracy, numeracy, and (sometimes) 'basic competence in IT'. Furthermore, "health and careers" has now become "sex and careers," which seems to demonstrate further pressure from the minimalists in educational politics. At primary school level, there is much emphasis in the reports on the integration of 'basic skills' into work based on other subjects; at secondary level, only IT is considered in this way.

Although it is possible to read Dearing's recommendations positively, in that the restricting and incoherent detail of the National Curriculum will now be reduced so that schools can take a more flexible approach to planning the whole curriculum, the message clearly conveyed in the reports is that core learning should be within the bounds of isolated, traditional subjects. It is not clear how the aim of improving standards of teaching and learning is going to be achieved in this way without a massive professional development initiative to help teachers use their freedom effectively.

Cross Curricular Competences

These elements (also known as skills by NCC, 1990) have not been specified in detail by the National Curriculum literature, except for IT. I shall not attempt to do this job either, but I will assume that each of these 'skills' comprises a number of sub-skills, together with the ability, not just to perform the sub-skills, but to decide which to apply in a particular situation.

Of the cross-curricular competences, IT is in a special position--its content is prescribed in the National Curriculum orders (DES/WO, 1990) along with design and technology, because it is considered sufficiently important to require that students learn about it, rather than just encourage them to use it. Its sub-skills are specified, though not in great detail, and the need to be able to decide which sub-skill to apply to a situation is recognised. Much has been written concerning the place of IT in the curriculum, together with models of delivery, procedures for evaluation, and objectives for the professional development of teachers. With the partial exception of study skills, this research and development has not taken place for the other competences. IT is also different from the others in that it involves the use of a human-made system rather than purely intellectual tools. Although the development of an effective mental model is an important aspect of learning IT, the fact that the learner can build this through interactive exploration with automatic feedback on performance changes the nature of learning to some extent.

Communication and numeracy, although not officially defined in nature or scope, seem to be largely subsumed in the orders for English/Welsh and mathematics respectively; their presence in the list of cross-curricular competences serves to emphasise that they involve

generic skills which should be developed and practised in a variety of contexts in addition to separate study.

Like IT, problem solving also seems to be of a different nature to the others, but for another reason. It is not clear that the elements which make up competence in problem-solving are generic. Although communication, numeracy, IT and study skills taught in one context do not automatically transfer from to another (and teaching-for-transfer is an issue which will be considered later), we have a clear feeling that when we know how to do things with words, numbers, computers, and information sources, we can use this capability in fields we have not yet explored. However, we do not have this confidence with 'problem solving.' There is much evidence to support the view that problem solving capability is much more domain-specific than other types of skill; knowledge in the relevant domain plays a more important role, and the nature of the sub-skills varies from one domain to another (Hennessey, et al., 1993). Research is still unclear as to whether there are generalizable heuristics, nor is clear even that the subskills are explicitly teachable (Evans, 1986) in the way that reading, calculating, computer operation, and even information seeking are. Problem solving also seems to be at a different level in the hierarchy of skills, since communication, numeracy, study and IT can all be considered sub-skills. Hennessey et al. claim that problem solving in the curriculum should "denote the resolution of meaningful problems and dilemmas in the context of guided social interaction and negotiation with teachers and peers" (p. 85).

This seems acceptable to most teachers, but there is unlikely to be widespread interdisciplinary agreement concerning the nature and scope of problem solving, or on what its sub-skills are, or even whether it is a relevant matter.

There has been no guidance available to teachers as to how the competences should be developed. We would certainly expect the learning of problem solving to be a process of construction rather than reception, in the light of findings concerning the qualitative differences in the strategies of novice and expert problem solvers in various domains, and the research on conceptual change. Research also shows certain common elements to the conditions for effective learning of IT (Kennewell, 1993; Somekh and Davies, 1992; Birnbaum, 1989), and problem-solving in mathematics (Polya, 1981; Burkhardt, 1982; Schoenfeld, 1985) and design and technology (Hennessey, et al., 1993). There appear to be a number of stages through which each learner should progress in developing a particular skill:

1. Recognising a need in a context that is comprehensible to the learner;
2. Attempting a solution and predicting the effects;
3. Receiving assistance with the sub-skills required;
4. Reflecting on the result, the methods by which it was obtained, and possible other uses of these methods;
5. Practice in sub-skills where necessary to effect automaticity; and
6. Application in a variety of contexts in order to develop generalizable concepts and procedures, and to recognise their scope and limitations.

Example 1: In a mathematics lesson, students may be asked to decide on the price to charge customers for an ice-cream cone at a school fair, given the cost of large

tubs of ice-cream and of empty cones. This simple brief should ensure that stage 1 is achieved by a wide range of learners. Stage 2 may be achieved at different levels and in different ways (some students will 'know' the price of an ice cream; some will decide to carry out a survey of the market; others will proceed analytically from the costs involved). Stage 3 will thus require flexibility on the part of the teacher, and perhaps the ability to organise groups of students to pursue different aspects of the problem so that the sub-tasks are matched to the abilities and learning needs. Stage 4 is then achieved by requiring group rather than individual solutions; by asking each group to report back on their ideas, methods and findings; and by expecting students to constructively criticise the methods and findings of others and to suggest alternative ideas. Stage 5 then carries far more motivation for individual students, and Stage 6 is facilitated by the process of social acculturation of students into the field of mathematical problem solving which has been fostered by this style of learning management. The problem-solving process has been carried out and reflected upon by students with support from more expert peers and teachers, thus achieving what Vygotsky (1978) suggests is a pre-requisite for internalization by individuals.

Example 2: In an English or IT lesson, a student may be asked to use a word processing program to make revisions to a piece of writing so that it can be published in the school magazine. He starts to revise the syntax and layout, but the teacher realises that the student is just using the return, delete and cursor movement keys to effect changes to the margins and to correct words consistently spelt wrongly. She thus introduces the techniques of margin setting and search-and-replace (by prompts or questions, and if necessary by step-by-step instructions), and asks the student to try these repeatedly within this piece of work and to consider the time saved. She then makes sure that she prompts this student next time he uses the word processor to use these new techniques again, rather than the simple, automatised techniques which he would naturally have used. Eventually, the more efficient techniques are automatised. This is most likely to happen, of course, if the student takes over the process of monitoring the effectiveness of the techniques he is using.

The development of metacognitive skills through the problem solving approach to learning described in Example 1 has been found very successful (Tanner and Jones, 1993). The teacher initially provides the organising and monitoring questions and prompts, whilst encouraging the students to take over this role themselves through working in groups, discussing their progress and reporting on their methods. This sort of work is motivating, not just for the students, but for teachers as well:

> Recognizing that the sophisticated and serious thinking that such activities often generate might persuade teachers to go on creating opportunities where their students' capacities are exercised and their achievements recognised and recorded (Rudduck, 1991, p. 134).

Hennessey, et al., (1993) cast considerable doubt on the possibility of transfer across domains and contexts of either conceptual knowledge or a general problem solving capability, but Craft (1991) reviews some attempts to integrate the development of 'thinking skills' into

the curriculum and identifies some factors which have made these more successful than isolated teaching. These successes give encouragement to the proposal that the stages listed above for integrating problem solving and IT learning into the curriculum may be applied to the development of other competences. Certainly the teaching of study skills should follow similar lines (see Tabberer, 1987, for instance). Learning to talk, listen, read and write generally follow the same approach at earlier ages. The teaching of numeracy rarely follows this pattern, however. Where it occurs in mathematics lessons, there is often no feeling of need for the skill, nor any requirement for learners to try a task before instruction, and thus the instruction provided is often not well matched to the learners' needs. Stages 4 and 6 are also usually absent, with correspondingly excessive emphasis on Stage 5. There is growing research, however, on the effectiveness of methods which start with suitable contexts, build on (or challenge) pupils' own methods, and encourage reflection and generalisation (e.g. Wheatley, 1991; Bell, 1993). This approach to the development of numeracy could well be situated in science, geography and technology lessons as well as in mathematics.

I suggest that a consistent approach across the curriculum to the development and transfer of skills, to include domain specific skills in technology, science, and physical education as well as the cross-curricular competences, would not only aid the development of these skills but help pupils develop a learning capability which would provide an excellent foundation for subsequent vocational training and personal development. This approach would take as its basis the problem-solving process set out above, with tasks chosen to stimulate the need for, and development of, particular sub-skills. This approach seems more effective at school level than the teaching of skills in isolation prior to their use in context, but we lack empirical research on this matter. Isolated skill work may still be appropriate at times during the learning process--to introduce a complex procedure, or to practice a procedure which is understood but not yet automatised.

Elements of Cross-Curricular Topics

In primary schools, the notion of 'good practice' set out by the Plowden Report (1967) involved a high degree of thematic work covering extended periods of time. Themes such as 'Ourselves,' 'Our Town,' 'The Sea,' 'The Weather,' 'Castles' can stimulate and support work in English, science, geography, history, design and technology, art, drama, and music. These would be augmented by specific work on the development of skills and understanding, principally in English/Welsh and mathematics. A class may be engaged in a number of activities at any time, and the role of the teacher is more that of a manager and consultant than an instructor.

This has a number of advantages, including:

(a) It reflects a more natural approach to learning, and exploits children's curiosity;
(b) It allows more control over their learning to be given to pupils;
(c) It enables study of the 10/11 National Curriculum subjects to be incorporated without trying to fit them all into a timetable; and
(d) It provides contexts in which children can learn to apply skills which they may have been taught in isolation from any useful purpose.

There are disadvantages:

(a) Individual pupils' curricula may be unbalanced if they are allowed to pursue their own interests too deeply;

(b) Matching the work carried out with National Curriculum subjects and monitoring children's subject learning is difficult;

(c) Teachers with limited expertise in particular subjects may only encourage superficial coverage of important concepts, and may not be able to help pupils transfer skills; and

(d) Where a number of different activities occurring simultaneously, the teacher may merely give organisational questions and prompts, rather than probing pupils understanding and explaining complex matters.

Various implementation strategies for cross-curricular elements have been suggested to schools, such as those listed for cross-curricular themes in The Whole Curriculum (NCC, 1990a):

1. Teach through National Curriculum and other subjects

   This involves departments checking off where their current schemes cover the elements, and then the senior curriculum manager negotiating with departments to incorporate those aspects which are not already being covered;

2. Whole curriculum planning leading to blocks of activities

   This involves an analysis of the cross-curricular themes and then negotiating with departments to incorporate a coherent set of new activities into their schemes;

3. Timetable each theme separately

   This looks simple but requires particular teachers to be scheduled at particular times;

4. Teach through a separately timetabled Personal and Social Education course

   This may not produce a coherent course;

5. Long block timetabling

   This comprises a series of 'one-off' activities which may be seen as a token gesture by pupils and soon forgotten.

There are two simple approaches to the implementation of cross-curricular elements: scheduling as separate subjects (often used for IT), and a laissez-faire or ad hoc approach (often used for EIU, environmental education, study skills and problem solving). Smith (1992) sets out in detail a number of more sophisticated approaches to planning the teaching of aspects of IT:

Principal host subject: one subject takes responsibility for the same aspect throughout the school;

Host subject year-on-year: a subject only takes responsibility for an aspect for a particular year-group of students;

Subject assignment: skills teaching is carried out in specialist IT lessons with a group of students, then a subject is asked to give those students an assignment which uses these skills;

Enriched core: IT is timetabled separately, but the scheduled slot is used by teachers of other subjects at particular times to do IT work relevant to their subject.

These ideas can be extended to other cross-curricular competences. A Host Subject for a competence is thus a subject which takes the main responsibility for teaching aspects of that competence for a group of pupils. Extra teaching time may be allocated to the subject for this purpose for at least some of the time for which it has this responsibility. It would be natural for English to host communication, maths to host numeracy, and for science and D&T to share problem solving. Studying is more problematic; traditionally thought of as 'library skills,' it has been hosted by English, but history and geography may be more appropriate hosts.

Other subjects (which I shall call application subjects) can then provide further contexts for developing competences and practicing sub-skills: numeracy would be applied in science, design and technology and geography; communication in modern languages (and, indeed, in all other subjects); problem solving in maths and history; study in English, RE and history/geography. Each subject should liaise with the relevant host subject regarding the timing and approach to teaching the skills concerned, so that appropriate preparation and support for transfer of learning can be given to pupils.

The themes might be handled in a similar way, with host subjects such as design and technology, geography for EIU, science/geography for environment, and PE/science for health. citizenship/community and careers may best be handled by separate provision as for personal and social skills. Host subject year-on-year would be particularly appropriate for themes such as EIU, environment and health where coverage requires a combination of national curriculum subjects. The themes can also provide contexts for learning aspects of non-host subjects, so again we can consider appropriate application subjects, such as maths and design and technology for EIU, design and technology and English for environment, modern languages for health and careers, English and history for citizenship/community, and all subjects for personal and social skills. The links will need to be forged by teachers and made explicit to pupils, so that pupils can gain from the contribution of different subject matter and processes. We should not take it for granted that students can transfer conceptual knowledge, nor should we give up in the face of difficulties with transfer; as with any other aspect of learning, students will need initial support for the process of transfer from those with more expertise.

With some adaptation, the ideas may well be helpful for planning in the primary curriculum, particularly where the topic is the main curriculum unit and subject coverage must be planned in relation to these as well as cross-curricular elements. The integrated/thematic curriculum characteristic of UK primary schools has been much criticised for superficial coverage of the subjects taught through this approach, especially for 9 and 10-year olds (Alexander, et al., 1992). The same might be said for the cross-curricular themes, but then we would not expect primary students to be taught the depth of subject knowledge required for more rigourous study of health, environment, or EIU. Matters such as AIDS, global warming, and third-world development should not be treated superficially. Certainly, an explicit model of implementation in primary schools would aid continuity across phase transition; the great variety in provision by primary schools, together with the mutual ignorance amongst primary and secondary teachers of each others' practice, create massive barriers to progression in pupils' attainment (Williams and Jephcote, 1992; Kennewell, 1993).

Not all aspects of the themes, particularly community/citizenship and careers, fit well into National Curriculum subjects. At secondary level, it seems sensible to create a catch-all personal and social education (PSE) course, designed to cover these aspects and those matters of health, EIU, environment, communication, study and problem solving which are directly concerned with students' personal and social development. There is a danger, however, that the themes are still covered superficially in secondary school unless they are properly integrated into the subjects which provide the knowledge, concepts and skills needed to work with the issues involved. This has implications for the planning of learning objectives for units of work; teachers must plan explicitly for the learning of subject, theme and competence aspects. At particular stages during a unit, the students may need to focus on just one of these. This is quite reasonable as long as the teacher ensures that a suitable balance is maintained between the objectives.

Evaluation and Teacher Development

The literature is predominantly concerned with the curriculum as planned or delivered, and many schools carry out a regular audit of the teaching of cross-curricular elements in subject lessons. This is certainly valuable where a laissez-faire approach is taken to implementation, but is a highly superficial exercise, and as Nixon (1991) points out, is not capable of supporting the evaluation which is supposed to be an aspect of the audit. So what of the nature and quality of the curriculum as received by students? In secondary schools, only the students themselves can provide a real cross-curricular link. Some schools involve pupils in an audit as well, in order to help them build a profile of their own skills. This can easily degenerate into a box-ticking exercise which students and teachers see as a chore; most students find it difficult to remember or keep records of their experiences over a period of time, and are not encouraged to evaluate their own learning. Instead, the integration of pupil self-assessment into curriculum tasks provides a much more fruitful experience (Tanner and Jones, 1993).

My observations confirm the point made by Holt (1964), that teachers and students have different objectives for most tasks. The teacher wants the students to develop certain knowledge, concepts and skills, and sets tasks to help the students to do this. But unless the learning objectives are made explicit, and the students involved in evaluating their success in

achieving these, the students will be aiming only to complete the task. They may well use methods that subvert the teachers' intentions for their learning. If the teacher has joint objectives in, for instance, geography and environmental education; in history and citizenship; or in English and IT, it is even more necessary to make the objectives explicit and to evaluate attainment.

The problem solving approach and the sharing of objectives are important matters for teacher education, and may be covered by a combination of collaborative school-based action research and central training that schools can buy into. Teacher training courses should themselves incorporate the problem solving approach, as this not only represents good practice in course design and teaching, but also provides a model for teachers to apply to their own courses.

Conclusion

Hargreaves (1991) distinguished content coherence--the relationships between the knowledge and skills involved in the planned curriculum, both within and between subjects - and experiential coherence--the relationships within the curriculum as it is experienced in the routine world of the classroom by students and teachers. It is clear that students currently do not experience such coherence to any great degree.

Hargreaves also pointed out that far too much was being crammed into the non-statutory cross-curricular guidance, and that predicted that schools would render the task manageable by either completing check-lists to indicate which aspects of the themes and competences they were covering in their subject teaching (with no attempt to create coherent experiences for students), and/or by ad hoc excision of cross-curricular elements from the planned curriculum. Events have proved him correct, with systematic excision seeming to have official approval. This is a highly retrograde step, entirely counter to the national curriculum aims of raising standards of learning. Schools must be offered effective ways of helping pupils gain coherence across a subject-based curriculum, based on realistic implementation models and affordable professional development of teachers. Michael Williams (1992) criticises a "technicist approach" (p. 78) to the development of cross-curricularity, which is piecemeal and lacks an overall curriculum philosophy. The ideas set out in this paper are clearly of a technical nature, and although I have not sought to theorise on the nature and place in the curriculum of the themes and competences, the approaches to implementation proposed have a clear epistemological foundation in constructivism. In any case, as Joyce Shanks suggests in her response to Williams' paper, curriculum philosophy within a school should not be constructed at national level by politicians and curriculum theorists, but by the teachers and community representatives in the light of advice from authoritative sources. The detail of implementation must then be addressed through effective school management processes, and I hope that I have set out some useful principles to guide this process and to stimulate further theoretical and practical research.

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FOR YOUTH IN THE NEW GERMANY

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During June of 1993, Wegner joined sixteen teenagers and two teachers from the western German town of Dreieich at an experimental interdisciplinary seminar on the Holocaust at Buchenwald concentration camp near the city of Weimar. The activity was part of an elective program called "Project Week" promoted by the state of Hessen.

The major purpose of the study was to examine the nature of the teaching model in Holocaust education used at Buchenwald as well as gain impressions and reactions from the students about this educational experience. Most significant from the outset was the geographical location of the concentration camp in the province of Thuringia, formerly part of East Germany.

The five-day seminar integrated archival research on the history of the camp from diaries of the SS and camp inmates and a host of many other documents relating to the daily administration of Buchenwald, the site of 65,000 deaths under the Nazis. The sixteen students, ranging in ages from fourteen to seventeen, visited numerous execution sites including the horse barns where thousands of Soviet POWs were murdered along with the mass hanging site, the crematorium and the rock quarry used for forced labor. In particular, the special arrest cells of the SS elicited a great deal of emotion from many of the students in the group, especially the one commemorating the execution of Lutheran pastor Paul Schneider who openly defied the Nazis. The students continued their archival research in groups of two examining the daily lives of prisoners, the sentencing procedures of the SS, underground resistance in the camp, the SS bordello and the cruelty of Ilse Koch, the camp commandant's insane wife.

The seminar at Buchenwald ended with an archeological dig not far from the former SS barracks. The students unearthed a host of artifacts stripped by the SS from the bodies of inmates after execution including buttons, shoes, silverware, prisoner identification tags, articles of clothing, a coin purse, a denture, a shoe horn and a prophylactic rubber. Interviews with the students confirmed their unanimous view that the dig represented the most meaningful learning experience in the seminar and, moreover, provided a valuable context for the research elements of their work.

Unearthing artifacts from people who once lived, suffered and died here offered a powerful connection which their history textbooks could not provide. In a generational sense, certain older relatives did not share their intellectual curiosity for the history of the Holocaust. Twelve of the 16 students related a great deal of discouragement and strong

negative reactions from their grandparents for participating in the seminar. The project work marking the pedagogy for the seminar lead to the completion of a student-edited volume of research essays along with a special exhibit of artifacts from the dig for a special weekend program of projects for the community of Dreieich the following week.

TEACHER LITERACY: LANGUAGE AND READING INSTRUCTION

PGCE STUDENTS DEVELOPING UNDERSTANDING OF THE TEACHING OF READING

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Despite the rhetoric concerning children's rights of access to a broad, balanced and differentiated curriculum, there is much more widespread and heartfelt agreement that, whatever else they do, primary schools must teach reading well. If children fail to gain a secure grasp of reading in the primary years then their ability to benefit from any kind of curriculum will be severely limited. As Pumfrey (1991) asserts:

> Reading matters. It is an amplifier of human abilities. It opens up to the individual the thoughts and feelings of other minds, past and present, here and in other countries, via the medium of text. Not to be able to read in our society is to be disadvantaged and marginalized, culturally and economically. This point is clear to parents. Teachers and schools are expected by society to ensure that children become literate in the fullest sense of the word (p. 5).

At the beginning of this decade public concern in the U.K. was aroused by the report of an apparently significant drop in reading standards at age seven and the finger of suspicion was pointed at "new fangled" methods of teaching reading, and in particular, an approach that was labelled "real books" (Turner, 1990). Anyone with a literal turn of mind might be excused for thinking that schools had been using cardboard replicas up to this point! The fact that "real books" constitute a resource, rather than a teaching method, was somehow lost in the ensuing brouhaha, as was the fact that the original account neither proved conclusively that standards had declined, nor that "real books" were actually being used in the schools in question.

The allegations did, however, set off a long-running, and sometimes acrimonious, debate about reading standards in which the government was quick to involve itself. The Secretary of State for Education immediately ordered two inquiries, one to be conducted by HMI (Her Majesty's Inspectorate) and one by SEAC (Schools Examination and Assessment Council) to check the validity of the claims of decline (DES, 1991, Gorman and Fernandes, 1992). Following this, there were requests to CATE (Council for the Accreditation of Teacher Education) to undertake an inquiry into the preparation of student teachers to teach reading in 92 universities, colleges and polytechnics in England and Wales (CATE, 1992). Coincidentally, HMI were undertaking a routine survey of new teachers in school (OFSTED, 1993) and took the opportunity to home in on the perceived adequacy of their preparation to teach reading.

I have always had an interest in how children learn to read--originally as a teacher of young children, then as an educational psychologist and lecturer, and latterly as a parent, supporting my son and daughter in their attempts to join the "literacy club." What the national debate did, perhaps belatedly, in view of my job as a teacher of primary teachers, was to make me consider seriously for the first time what our students know/believe about reading at the start their post graduate course and how their understanding, both of the

process itself and how to teach it, develops during the year. The ultimate aim of this study is to produce better teachers of reading, first by improving the "match" of the taught part of the course to student levels of understanding and second by gaining some ideas of how our co-operating teachers can provide optimum support for students teaching reading in their classrooms.

The report which follows is very much one of "work in progress," as systematic data collection commenced at the start of this academic year and is on-going. It is only now, as I try to make sense of the early data and frame it within some kind of theoretical structure, that I realise the enormity and complexity of the task I have set myself. What seemed like a fairly straightforward research question is unravelling before my eyes. I hope that writing this paper will help to focus my attention on that which is manageable, whilst at the same time indicating the breadth of the field and flagging other questions which I am unable to answer at present.

As with so many other areas of teacher education, the research literature concerned with the development of teachers' knowledge appears to be growing exponentially. What follows does not claim to be a comprehensive survey of the literature, but is a highly selected sample of what seems pertinent to the study in hand. My initial search, in line with Hollingsworth (1989), suggests that differences in students' prior beliefs about teaching, their developing subject and pedagogical knowledge and the ecology of learning in classrooms, all have a significant bearing on their subsequent practice.

Prior Beliefs and Influences

There is no doubt that students enter teacher education courses with definite ideas about teaching and learning and it is often argued that their prior experiences and beliefs are more influential on their development as teachers than the courses themselves (Zeichner, et al., 1987). One influence, shared by all prospective teachers, is the thousands of hours spent as pupils in what Lortie (1975) refers to as an "apprenticeship of observation." Calderhead (1987) too, suggests that the images of particular teachers remembered from childhood can have a powerful effect on students' developing practice and that some of these recollections, such as teacher as friend and confidant, can actually hinder the formation of a professional persona. Many recent studies of teacher biographies (Ball and Goodson, 1985; Goodson, 1992; Nias, 1989) also clearly indicate the potency of prior experience, but it is an area, like much else in teacher education, that requires much further work in order to produce useful explanatory frameworks.

So, according to the literature, what commonly held sets of beliefs do teacher education students bring with them? McDiarmid and his colleagues at Michigan State University have almost made a speciality out of studying these entering characteristics. Here is a brief summary of some of their findings. Students believe:

That teaching subject matter is all about showing or telling--a view that is prevalent in the general culture (Cohen, 1988);

That learning is about remembering rules, procedures and facts and that this comes from practice (Ball and McDiarmid, 1990; McDiarmid, 1991);

That their main job is to motivate pupils and get them to pay attention, hence learning should be "fun" (Ball, 1988);

That subject matter at primary level is simple and they already know enough to start teaching before their course begins. What they do not know, they believe they will learn from experience in schools (Freeman and Kalaian, 1989; Foitu, Freeman and West, 1985);

That to find out if pupils have learned teachers need only ask them to restate or perform what they have been taught (McDiarmid, Melnick and Parker, 1988);

That some children are not capable of learning basic skills in reading and maths because they lack either the right home environment, the right attitude or the right ability (Freeman and Kalaian, 1989; McDiarmid and Price, 1990); and

That every child is unique and therefore deserves an education tailored to meet his or her individual needs (McDiarmid, 1989).

If indeed the majority of education students hold such constellations of beliefs about teaching and learning, then, as McDiarmid points out, it should be the job of teacher educators to challenge these preconceptions and lay bare the assumptions on which they operate, otherwise school experience may only serve to "confirm their faith in the folkways of teaching" (McDiarmid, 1991). The idea of challenging students' beliefs also appears in Hollingsworth's research (1989). She found that where student prior beliefs were congruent with those of their cooperating teacher there was little opportunity to confront and possibly modify these beliefs by testing them in the classroom. Such teachers tended to promote rote copying or modelling of their behaviour, limiting the depth of students' processing of information and hindering their knowledge growth. Cognitive dissonance between student and teacher appeared to be necessary to promote optimum development.

Knowledge for Teaching

The literature identifies various kinds of knowledge for teaching, including practical or craft knowledge (Elbaz, 1983; Clandinin, 1985; Zeichner, Tabachnick and Densmore, 1987), which is conceived as personal, idiosyncratic and experiential. Carter (1990) is critical of much of the work in this area, commenting that it tells us more about the characteristics of teachers' knowledge rather than the content of what teachers know and can therefore never result in a body of codified teaching knowledge.

Subject or content knowledge (Shulman, 1986; Calderhead and Miller, 1986; McNamara, 1991) which constitutes the amount and organisation of knowledge of a particular discipline or subject, also figures heavily in the literature. Subject knowledge requires an understanding of both its substantive and syntactic structures (Schwab, 1978) respectively, the

variety of ways in which the basic concepts and principles of the discipline are organised and the variety of ways in which truth, falsehood, validity and invalidity are established.

Pedagogical or classroom knowledge (Doyle, 1986), which includes developing routines for managing and organising the classroom, is a third domain. One knowledge domain which has excited particular academic interest since it was first mooted as the "missing paradigm" by Shulman (1986) is that of pedagogical content knowledge, which is conceptualised as a dimension of subject knowledge specifically including "the ways of representing and formulating the subject that make it comprehensible to others." Both MacNamara (1991) and Meredith (1993) have criticised the concept; first, because its derivation from knowledge of the subject is not straightforward and may in fact be shaped much more by experiences of teaching than anything else; and second, because it is rooted in a teacher-directed, instructional model of teaching, which may not be appropriate in many primary classrooms.

The Ecology of Learning in Classrooms

Hollingsworth (1989) asserts that beyond the knowledge of the subject and pedagogy of teaching and managing pupils, teachers need practical knowledge of how pupils learn in classrooms. This involves understanding not only the social nature of learning in classrooms but also, and most importantly, how teachers bring all their knowledge of learning, subject and pedagogy together in devising meaningful academic activities or tasks. (Doyle, 1983, argues that the academic task framework of classrooms, through its organisation of situations, becomes both a theory of knowledge and the means of acquisition.) It is this integration of the social and curricular aspects of academic tasks to facilitate pupil knowledge across varying subjects and classroom contexts that lies at the heart of learning to teach and also what makes it so extraordinarily difficult, for it is a complex undertaking.

Research Methodology

One hundred and twenty-eight students enrolled on a primary Post Graduate Certificate in Education course were requested to answer a questionnaire about reading and the teaching of reading during induction week. Forty-nine of the students were intending to follow the Early Years (3 to 8 years) route and the remaining seventy-nine were Upper Primary (7 to 11 years) students. Since at this point they had not begun course work on children's literacy nor had they undertaken any supervised teaching experience, it was assumed that the views they expressed were representative of their own relatively "uncontaminated" prior beliefs concerning reading. The questionnaire was simple to complete, although there were some open-ended questions which aimed specifically to tap into the students' early ideas about reading (See Appendix 1 for sample Questionnaire 1).

A second questionnaire was administered to the same group of students half way through the year. This was immediately after they had completed their first block of teaching practice and a methods course in English (which included all aspects of children's literacy). Additional questions concerning what tasks the student had undertaken in relation to reading were added to this second version of the questionnaire, which in all other respects was the same as the first.

Attempts to keep track of individual scripts whilst maintaining anonymity proved difficult and had to be abandoned. The results therefore can be presented only in terms of whole group shifts of emphasis rather than those of individuals.

It is intended to commence an in depth follow-up of a group of twelve students (six Early Years and six Upper Primary students) on their second block of teaching practice, by undertaking fortnightly interviews with them and their supervising teachers (three of whom are involved in a mentoring research project at the university); by fortnightly classroom observations of reading instruction and by examination of their teaching practice files. It was decided to delay this part of the study until second practice because there is well documented evidence that before students are able to focus their attention upon subject specific content and pedagogy or children's learning they must have developed routine skills of management and control (Shefelbine and Hollingsworth, 1987).

Results of Questionnaire 1. (E.Y. N = 47, U.Pr.N = 74 Total 121)

The first three questions are open-ended and designed to elicit from the students their early beliefs and understanding about the process of reading and how it is taught and learned. The categories are derived from the student descriptions.

Qu.1.1. What, in your view, counts as "being able to read"?

	E.Y.	U.Pr.
Bottom-up descriptions (no attention to meaning)	15%	21%
Emphasis on meaning (recognition implicit)	25%	25%
Combination descriptions (recognition and meaning)	51%	46%
Emphasis on oral fluency and pronunciation	8%	8%

The results for both groups of students are remarkably similar, with slightly more upper primary students describing reading solely in terms of letter recognition, for example, "Being able to recognise and distinguish the different letters in all contexts." Descriptions combining elements of both recognition, at letter or word level, and meaning being the most common.

Qu.1.2. How do you think children learn to read?

	E.Y.	U.Pr.
By "osmosis"--immersion in a literate environment	11%	14%
By association with pictures and objects	15%	12%
By practice and repetition of whole words	29%	18%

By building up words from individual letters	45%	49%
By reading and writing	-	7%

Again very little difference can be discerned between the two cohorts, the exception being that some upper primary students think that reading aloud and writing are contributory factors in children's learning to read. Phonic approaches received more mentions than any other.

Qu.1.3. What methods of teaching reading do you know about?	E.Y.	U.Pr.
Phonics	35%	35%
Whole word methods--"look and say"	27%	21%
Reading with/to experienced readers	14%	20%
Reading schemes	14%	9%
Real books	4%	9%
Other methods, including TV and computers	5%	7%

The two major reading methods of the last 50 years, phonics and look and say, dominate and account for around 60% of the responses from both groups. It is interesting to note that the students, in common with the general public, confuse resources (reading schemes and real books) with methods.

Results of Questionnaire 2 (E.Y. N = 47, U.Pr. N = 70, Total 117) (Results from Questionnaire 1 in brackets)

Qu.2.1 What, in your view, counts as"being able to read"?	E.Y.	U.Pr.
Bottom-up descriptions (no attention to meaning)	15%(15)	16%(21)
Emphasis on meaning (recognition implicit)	33%(25)	49%(25)
Combination descriptions (recognition & meaning)	48%(51)	33%(46)
Emphasis on oral fluency and pronunciation	4%(8)	4%(8)

The major shift in both groups appears to be in the direction of more students citing the importance of meaning in their descriptions of reading ability. Examples include: "Being able to understand text in a variety of situations," "Being able to derive meaning from text" and "Being able to understand and comprehend any form of written text."

Qu.2.2. How do you think children learn to read?	E.Y.	U.Pr.
By building up words from individual letters	27%(45)	33%(49)
By practice and repetition	23%(29)	17%(18)
By "osmosis"--immersion in a literate environment	26%(11)	12%(14)
Through the support of experienced readers (parents,teachers, peers)	14%(-)	19%(-)
By association of words and pictures or objects	7%(15)	10%(12)
Other--including writing	-	9%(7)

Differences between the first and second questionnaire include a considerable fall in the overall numbers of students who believe that children learn to read by building up words from individual letters and the appearance of a completely new category which indicates the importance of experienced readers in supporting learning.

It is interesting to note that, despite the links made in course work between writing and reading, that only a small, almost identical proportion of students, comment on this in both questionnaires. Is this a link that will only be internalised through extensive practical experience? However, a survey of the teaching of initial literacy carried out by NFER from 1990-91 in 122 primary schools in England and Wales (Cato, et al., 1992), found that very few experienced teachers appeared to relate the teaching of reading and writing in a principled way. For example, the systematic use of current reading materials to provide models for writing was rare.

Qu.2.3. What methods of teaching reading do you know about?	E.Y.	U.Pr.
Phonics	34%(35)	31%(35)
Real books	17%(4)	25%(8)
Look and say	14%(27)	2%(21)
Language centred approaches--Breakthrough to Literacy	9%(-)	5%(-)
Reading with/to and experienced reader	7%(14)	5%(20)
Reading recovery	5%(-)	21%(-)
Big books	4%(-)	-
Reading schemes	4%(14)	6%(9)
Other	6%(5)	5%(7)

For Early Years students, the literate environment assumes greater prominence and this coincides with the emphasis in coursework of the importance of stimulating young children's interest in books through immersion in stories and high quality picture books.

The picture concerning student knowledge of methods of teaching reading is much more diffuse, as perhaps might be expected. Comments on the first questionnaire, administered before the course began, revealed that many students were not familiar with any methods other than the ones they were taught to read by--hence the dominance of phonic and look and say methods. The second questionnaire, coming, as it did, after a course which examined methods of teaching reading and an extensive period in school, demonstrates that students' knowledge of methods has widened considerably. Included for the first time are mentions of language centred approaches, big books and reading recovery. The frequency with which real books are mentioned has more than doubled for both cohorts, and this in spite of the fact that they are a resource and not a method, a distinction which was made clear during the taught part of the course. Phonics remains the most frequently cited method, with proportions little changed from Questionnaire 1.

Questions About Classroom Practice

The remaining questions asked students about classroom practice during their school experience and reveal some interesting differences between the groups.

Qu.2.4.a & 2.4.b During your teaching practice have you observed your teacher doing any of the following? Did you do any of them?

	E.Y. obs.	E.Y. did	U.Pr. obs.	U.Pr. did
hearing children read	96%	89%	87%	90%
reading to class or group	96%	96%	88%	93%
teaching class/group reading	57%	45%	11%	10%
using reading games	45%	51%	6%	6%

Whilst the majority of students clearly had the opportunity both to observe and emulate their teachers in listening to children read and reading to the class, the picture is different for the other two categories. Is it the case that students are enabled to try out these other activities only after they have been modelled by the teacher or is it lack of opportunity that has prevented the lack of take up? Another possibility is that both the class teaching of reading and games are seen as less appropriate for older children, the majority of whom will have mastered the mechanics of reading, hence the very low percentages in the upper primary columns. Some clarification of this will be sought during interviews with individual students next term.

Qu.2.4.c If you heard individuals read, what strategies did you offer if they got stuck?	E.Y.	U.Pr.
sound out the word	24%	24%
syllabify	9%	26%
re-read sentence/use context	19%	23%
use picture cues	19%	7%
use initial letter	16%	6%
mime/prompt/tell	5%	4%
guess	5%	3%
use analogy	3%	3%
other	-	4%

The differences between the two groups in the strategies they offer are explicable in terms of the age difference of the children concerned and the likely stage they have reached in their reading. It could be argued that using picture and initial letter cues are more appropriate for beginning readers, whereas syllabification is a more helpful strategy for older, experienced readers. Despite the fact that "sounding out" is of little help in decoding a large proportion of English words, it remains one of the most popular strategies offered; it was first choice for 17% of Upper Primary and 13% of Early Years students.

Other Differences

There were other differences in the experiences of the two age cohorts of students. Over three quarters of the Early Years students observed their teachers using Welsh language materials for language and reading work and almost the same number claimed to have worked in Welsh with pupils for some part of the practice. (The majority of students enrolled on the course are English and are new to learning Welsh themselves.) In contrast, the Upper Primary students had less than a 50% chance of observing Welsh being taught and only a third attempted to teach it. This may of course be due to the fact that the students' own level of competency was insufficient to cope with teaching Welsh to older and more advanced students, a fact which is also true of many of the co-operating teachers, who are often reliant on peripatetic teachers for this part of the curriculum.

Computers

A fifth of Early Years students and only 3% of Upper Primary students used I.T. in the teaching of reading. It is hard to say whether this reflects a general lack of expertise with computers on the students' part or an insufficiency of suitable programs in schools. It is noticeable that Upper Primary students' use of computers seems to relate to whether or not their class teacher was observed using computers, but this is not the case with Early Years

students. This ties in with one of the striking findings of a survey of the teaching of initial literacy referred to earlier (Cato, et al., 1992). Not only did the teachers in the survey lack confidence in their use of information technology, but seemed unaware of its potential benefits in the language curriculum and in the enhancement of reading skills. Only three teachers in the survey showed any awareness and enthusiasm and they were fortunate to have had specialised IT training; in their classrooms the computer was always available for use and always in demand.

Further Work

It is hoped that more focused work next term will provide some answers to the disparities thrown up by the questionnaires and, more importantly, will contribute a rich source of data for a much fuller exploration of students developing understanding of reading and the teaching of reading, at different ages and stages.

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TEACHING THE PARTS IN A WHOLE LANGUAGE CLASSROOM

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Conflicting messages confront educators as they read and converse about language learning:

Reading, like talking, is learned naturally when children are immersed in print.

Teachers need to get out of the way and let children learn.

Whole language teachers don't teach skills; they believe that skills are learned through discovery.

Whole language teachers focus on meaning and reading for fun.

Direct instruction has no place in whole language classrooms.

An interactive approach which combines skill instruction with meaning is most appropriate.

Teaching cognitive strategies counts as skill instruction.

Whole language is appropriate for most children, but children with special needs profit most from explicit skill instruction.

There seems to be a great deal of confusion about how children learn language, and specifically about how children learn the skills and strategies which allow them to become independent readers and writers.

Some of the statements above are more myth than reality. Others reflect commonly held beliefs of various groups of educators. As paradigms shift in reading education, educators are still experimenting and negotiating to arrive at an optimal approach to instruction that is flexible enough to benefit all children, yet is also supported by research.

In the shift from a skill-based part-to-whole philosophy to a process-oriented whole-to-part philosophy, it seems that sometimes the parts get lost. As I visit classrooms, I see:

Teachers who feel so guilty about their previous teaching of isolated skills that they avoid skill teaching altogether.

Teachers who are so dedicated to meaningful instruction and inquiry or discovery based learning that they tend to overlook the fact that some children are not

learning the skills "naturally." These teachers may focus on the whole to the exclusion of the parts.

Teachers who are in transition from more traditional to more holistic teaching, and who are uncertain how to integrate skills and strategy teaching. Sometimes, these teachers find it hard to trust that the skills children need are in the literature.

I also see children who are referred to the UWL Reading Center out of both skill- and whole language-based classrooms because they are struggling with reading and writing. It seems that some children and some competencies are still falling through the cracks.

I have even observed conflicting notions about the writing process among university students. Some students pay great attention to the editing process, while others have been taught that attending to details like spelling, punctuation and grammar is unimportant. These future educators will student teach within one or two semesters. They will be writing notes home to parents, writing on the board for their students, and writing to the principal. Those with rather less than perfect skills will soon lose their credibility. What, then, is the place of skill and strategy instruction in a classroom where teachers are emphasizing meaningful learning?

The Place of Skills and Strategies in Meaning-Centered Instruction

Several important understandings have developed as a result of my observations of and experiences with children:

In a whole-to-part philosophy, the parts are still there. Some children will learn the parts through immersion in meaningful text, inquiry and discovery. Some will not.

Those who do not will benefit from direct instruction.

Such instruction should always occur in a meaningful context. All learning should begin with meaningful wholes.

All children, including those who need the most support for learning, should be engaged in reading and writing in meaningful contexts for significant amounts of time.

Children need to know what they know and have a language about language. They need conscious awareness of strategies (metalinguistic awareness) and to have a "Have-a-Go Attitude" (Powell and Hornsby, 1994).

The role of the teacher is to watch what children are trying to do, and then help them do it (Smith, 1985). The teacher is a guide and facilitator. This means that, as teachers observe children's needs, they are responsible for seeing that those needs are met. Sometimes, providing more opportunities for reading and writing is not enough.

Some of these statements are quite controversial. The literature includes numerous debates over whole language and direct instruction as if the term whole language categorically excluded any direct teaching of skills or strategies. The debate is particularly evident in the special education literature because of the long-standing assumption that children identified as learning disabled require skills instruction that may not be necessary for other children. P. David Pearson raised the concern in 1989 that some proponents of whole language may not be open to the idea that modeling, error correction, and task sequencing are important components of cognitive apprenticeship models and thus have a place within holistic teaching. He recently predicted that, in the near future, educators will adjust their thinking to combine development and inquiry with more demonstrations that focus on strategy learning (Pearson, 1994).

An either-or approach to language learning sets up a false dichotomy. In the roots of whole language, one finds room for guided instruction in Donald Holdaway's developmental model (1986), which opened many doors for teachers wanting to pursue more meaningful literacy instruction. The model has four components:

Observation of "demonstrations": People in the act of using language.

Participation: Children are invited to participate and collaborate with a genuine interest in learning or mastering a particular skill, an "Expert/Novice" relationship.

Role playing or practice (without direction or observation): Critical trial and error period when the learner independently engages in a literacy act and attempts to self-regulate, self-correct, and self-direct his/her own learning. The competent user or teacher is nearby if needed.

Performance: When the learner feels competent, he/she voluntarily becomes the demonstrator, and the original demonstrator becomes the audience.

Interesting parallels are evident between Holdaway's model and the work of P. David Pearson and his colleagues. In the February, 1994, issue of Educational Leadership, Pearson and Linda Fielding have reviewed and interpreted research on how comprehension develops which spans more than two decades. They stated that comprehension involves knowledge, experience, thinking and teaching, and they pointed out that a significant finding over time is that comprehension can be taught directly. A successful reading program, they say, involves large amounts of time for actual text reading, teacher-directed instruction in comprehension strategies, opportunities for peer and collaborative learning, and occasions for students to talk about their responses to reading. They recommend explicit instruction in comprehension strategies which involves four phases:

Teacher modeling and explanation of a strategy;

Guided practice during which teachers gradually give learners more responsibility for task completion;

Independent practice accompanied by feedback; and

Application in real reading situations.

These phases were first published with Pearson and Dole's Gradual Release of Responsibility model (1988), where the responsibility for learning shifts gradually from the teacher to the learner through guided practice.

A related concept which goes back to the work of the Russian psychologist Vygotsky and other cognitive psychologists is scaffolded instruction, where the teacher observes abilities and skills that are emerging in children's language use and helps them to mature (Palincsar, 1986). The teacher "thinks aloud," sharing the progression of thinking in which he or she engaged to reach a particular conclusion. Gradually, the scaffolding is removed as students are able to think independently.

It becomes clear that the issue is not whether instruction in skills and strategies should be provided, but how. The issues are about "the contextualization (rather than isolation), and therefore the meaningfulness of the instruction and the stimulation of learners' 'need to know'" (Reid, 1993, p. 15). Explicit instruction still has a place in whole language classrooms, but that does not mean that teachers should follow hierarchical sequences, teach phonics in isolation, or prepare questions to test comprehension (Reid, 1993; Fielding and Pearson, 1994). It does not mean that children are once again relegated to passive, decontextualized learning (Harris and Graham, 1993).

Rather, when children do not discover skills and effective strategies on their own, they need to be taught. This implies that not everyone needs to be taught the same reading and writing skills and strategies. There is no magic sequence for instruction, as skills and strategies are taught when the need arises. Furthermore, some children will need more instructional support than others depending on their capabilities, the nature of the task, and the complexity of the strategy (Harris and Graham, 1993). When instruction follows these guidelines, it becomes doable and purposeful and makes the learner feel that it is safe to take risks—all necessary components for learning (Routman, 1991). Routman suggests that the teacher guide the student to self-determine the generalization and think through possibilities. The teacher may question and suggest, but the learner is encouraged to make deductions and consciously apply what is learned from one context to another.

Models for Teaching Skills and Strategies in Meaningful Ways

The models which follow demonstrate effective skill and strategy instruction which is contextualized in meaningful language activity. Learning experiences are structured so that children learn the parts--the skills and strategies they need as they attempt to construct meaning--within the context of the whole. The models can be adapted for use with students at the middle and secondary levels.

A One-on-One Process for Reading

As the reading process develops, it is important for the teacher to hear each student read frequently. Traditionally, reading aloud has occurred in round-robin reading groups. Children have taken turns reading part of a story aloud. If they made mistakes, the teacher quickly

interrupted to correct them, unless another child already had done this for them. Children seldom had the chance to use cues from the context that followed to correct themselves. The one-on-one process below allows the child to seek meaning through the reading of connected text, and then to learn word identification strategies in context. The steps in the instructional process are:

1. Select a self-contained passage to be read. For beginning readers, this may be one sentence at a time. For other readers, select one to three pages which contain a complete episode or idea. The passage should come from material that has been read in class or from a book the child is reading independently.

2. As the child reads to you, do not interrupt. Let him/her continue to read and use all the cues in the text to construct meaning. If an unknown word is encountered, tell the child to try his/her best. Encourage the child to skip the word if it cannot be decoded and go on. If the child will not proceed until the word is known, say the word and then go on. Jot down the words which present difficulty. You will want to come back to them later.

3. When the passage has been read, have the child respond, answer questions, write, or retell. Focus on meaning. I like to ask questions which cannot be answered unless the child has correctly identified the word. This focuses the child's attention on the connection between word identification and meaning.

4. Next, work with words on which the child miscued. Choose words for this exercise which carry lexical meaning. Apply word attack, or "fix-it" strategies and context clues to unlock the word. Routman lists teacher prompts that help get the child thinking, predicting, sampling text, confirming and self-correcting (1991, p. 140). Several of these prompts use what children know to help them learn the unknown. Make sure the child knows what the word means. If the child consistently miscalls a sight word (e.g., says a for the), you may decide to work with that word. As follow-up, provide supplementary work on needed skills and strategies, both within and outside of the story or text, but always in a meaningful context.

5. If the student has adequate word analysis skills but still lacks fluency, assisted reading strategies such as the Neurological Impress Method (Heckelman, 1966, 1969), repeated readings (Allington, 1977; Chomsky, 1978; Samuels, 1979), and Echo Reading (B. Anderson, 1981) will help.

Teachers can employ a similar process to develop skills and strategies during shared reading of predictable books or language experience stories. After the stories have been read several times by the teacher and the children, the children will know most of the words in the familiar story context. Next, the teacher can focus attention on sentence structure, sequence, letter-sound relationships, word segmentation, word analysis and other skills and strategies utilizing words the child already knows. Holdaway's use of masking (1986) is an excellent example. Another possibility is to have children choose words they want to learn and create a word bank which becomes a resource.

A Grammar Mini-Lesson Built on Student Need

Research makes it clear that skills learned during isolated grammar instruction do not transfer to writing. There are alternatives. In addition to teaching grammar through editing conferences, teachers can also contextualize direct whole-group instruction.

As you read children's writing, you will notice that a number of children are making the same grammatical errors. Keep a blank overhead transparency and a transparency pen nearby. As you encounter examples of the error, copy the sentences, as written, on the transparency. Soon, you will have a visual prepared for your mini-lesson. In class, when the drafts are returned, schedule a mini-lesson and procede as follows:

1. Place the prepared transparency on the overhead projector.

2. Say to the students: "These sentences have the same problem. Study them for a minute and tell me what the problem is." Call on someone to identify the problem.

3. Once the problem has been correctly identified, ask: "How could the problem be fixed?" There may be more than one possibility.

4. As suggestions are made, correct the first sentence.

5. Ask students to correct the other sentences on the transparency.

6. Ask for questions.

7. Tell the children that you now expect them to correct their drafts before they are considered final, and that you hope not to see this grammatical error in subsequent writing.

Developing Content Area Strategies

I have found that reading skills and strategies needed by older students who are struggling with reading can be taught most effectively in the context of assignments they must complete for content area classes. The textbook becomes the reading material, not workbooks or worksheets commonly found in traditional reading classrooms.

For example, if the student is to read a chapter of history with the purpose of learning key dates, places, names and events for a test, the teacher can show the student how to chunk the information together in meaningful units around the topic on a semantic map or other type of graphic organizer.

If the assignment involves understanding characteristics of various minerals for sciences, a semantic feature map can be developed as a strategic aid to learning the material. If the student is to compare and contrast two or more characters from a literary work, the teacher can demonstrate how to set up a comparison/contrast matrix. If the student is given a long list of vocabulary words to memorize for a content area class, the teacher can assist by grouping

words into categories, helping students use meaningful prefixes and suffixes to discover meaning, and providing meaningful contexts for the words, ideally from the textbook where they will be used. Word maps can also be helpful.

Commonly, students have difficulty organizing information in a way that makes it possible to relate new ideas to existing knowledge, and thus to learn and remember. The astute teacher provides the frameworks to facilitate this process.

Over time, the teacher can help the student apply these strategies in new contexts, each time removing more support until the student is able to utilize them independently. For example, the first time a semantic map is developed, the teacher may model by making the map itself and completing it, involving the student in decision-making about what to include as much as possible. On the next occasion, the teacher may assist the student in completing the map, perhaps providing the first "chunk" of content. Later, the teacher may provide only the skeleton of the map and expect the student to complete it independently. Eventually, the student will be able to design and complete a map without the teacher's assistance. The goal is for the student to be able to self-select appropriate strategies to match learning needs and then utilize them independently.

Ideally, the content area teacher will provide this instructional support in the classroom. However, I have found that the process is still effective when strategies are taught by a third party such as a reading teacher.

Summary

As language develops, children will learn many skills and strategies naturally through experience with language in a literate environment. Teachers can facilitate language learning by replacing "drill and kill" worksheets, round robin reading and other part-to-whole methods with extended reading and writing opportunities and contextualized instruction based on skills and strategies for which students have demonstrated a need. The models in this paper are designed to give teachers an idea of how contextualized instruction might look. Teachers should expect to see evidence in children's work that skills and strategies are being applied and metalinguistic awareness is developing. When instruction moves from whole to part, skills and strategies can make sense to learners and help them grow as language users.

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THE LIBERAL ARTS IN AN INTEGRATED CURRICULUM

THE ROLE OF ARTS IN THE CURRICULUM

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In 1982, the Secretary to the Welsh Joint Education Committee stated that:

> The macro-society of the U.K. and especially of Wales makes uncompromising demands on its schools...levels of performance are demanded which unfortunately are measured only too often in terms of examination results. A school is popularly judged not on its civilized behaviour, its devotion to artistic creativity, or its concern for people, but on its success rate in university and its bag of O levels.

Twelve years on, in 1994, with schools desperate to gain a high rating in the nationally published league tables of examination results, that observation remains true. When Malcolm Ross conducted a seminal study for the Schools Council in 1975, he encountered a similar point of view. Quoting from an interview with a headmaster, he recorded:

> You see, Mr. Ross, I'm all for progress and development. I see the value of projects like yours, but we have to get our priorities right. Now, in the system such as ours, we're not free to do as we like. The examinations, now--whether we like it or not--these are the things that matter. My life is regulated by the GCE... everybody who comes here wants GCEs and I am afraid I cannot do just what I like...I am only too delighted to give him (the drama teacher) what support I can, but this isn't a primary school you know and we have to get down to business.

Ross concluded that headteachers held narrow views about the function of the arts in education. They regarded them as valuable extra-curricular activities or special events. In general, heads considered that, after the first two years of secondary school, abler pupils were better employed devoting their time to the hard-core subjects in the curriculum. They saw the less able and the disruptive pupils as the ones who could best profit from activities in music and drama.

With the advent of the National Curriculum in British schools the position of the arts within it is as precarious as it ever was. It is ironic to record the policy of the Conservative Party before it came into office in 1979:

> There can be no more vital link than that between education and the arts. The school children of today are the artists and audiences of tomorrow.... Every child should have the opportunity for spiritual and practical fulfilment which the arts provide. In any core of subjects laid down by central government, the arts should have a guaranteed place.

In theory, governments of both right and left wing persuasion set a high premium on the importance of the arts in education. In practice, they are not well represented in the

curriculum, even though pupils would welcome the opportunity for more participation in the arts, particularly drama, as Witkin's evidence (1974) made clear.

The first chapter of his book is flawed by the inappropriate terminology employed to describe the process of making art. Even so, it must be admitted that the problem of describing in discursive language what is essentially a non-discursive activity is one that faces all researchers in the arts. In the final analysis, art can be articulated only in its own terms.

In his study of pupil preferences, Witkin asked some five thousand pupils of all ages, from six secondary schools, to construct their own (hypothetical) curriculum from a list of some twenty different subjects for the next ten school periods. Witkin pointed out that the cost of the lessons chosen needed to be weighed in terms of the lessons foregone, for pupils were not required to list subjects in order of preference. Consequently, their responses gave a more reliable indication of the true weight of pupils' choices, relative to one another.

While the highest number of choices all went to the vocational craft subjects, the dividing line between the broadly academic and non-academic curricula was established at drama. Witkin's results also illustrated that the pupils' choices in building their own curriculum showed a remarkable consistency over time in the face of quite strong academic pressures. The pupils in Witkin's six research schools opted for a 5½ per cent increase in the provision of drama in the school timetable, and this choice was reflected across the age/ability range from the first to the fifth years.

Twenty years ago, in the U.K., there was an attitude towards education and curriculum innovation which promoted the growth of drama in schools. However, today, given the radical changes in teacher education, the future position of drama and the arts in general does not look nearly as promising as it did. In the pattern of power which is hammered out in staff-meeting bargaining over curriculum time, it has become necessary once more to beat out some unerring, pedagogic rhythms for drama and the allied arts.

And yet Ross (1975) discovered that, when pressed, most arts teachers were unable to give either a coherent account of their educational purposes or a clear indication of their specific aims. They recognised that because they were concerned with using an artistic medium to symbolise experience, it was difficult to express what they were doing in words. Nevertheless, they felt that it should be possible to state clearly the function and importance of the arts in education.

Eggleston (1980), in arguing that the arts curriculum can relate directly to the pupils' immediate condition, stated that the arts offer experience in the essential qualities of developed humanity--truth, beauty, integrity, taste, style and sensitivity. Nevertheless, he considered that in today's world, it was no longer sufficient to justify the arts in terms of their 'eternal verities'. It has become necessary now to indicate the practical contribution the arts can make to the curricula of young people in contemporary society. Such special pleading does not have to be made for the inclusion of mathematics or science in the curriculum.

Curriculum decisions involve fundamental beliefs and values. They are not simply about availability of teaching expertise. In practice, decisions about what to teach are frequently based on a relatively narrow range of knowledge and experience. Their relationship to political and moral decisions is often unacknowledged. It may even be denied. In some circumstances, the values of the school as an institution may clash with the values of art as a process of discovery. The art process is to do with spontaneity and with playfulness, with the creative juxtaposition of disparate objects, sounds or ideas. The process can be joyful, delightful and adventurous, as well as agonising. Vestiges of Puritanism remain in some of our schools, where playfulness is associated with triviality. The Platonic and Puritan suspicions that "artists are interested in what is base and complex" and that "art ... feeds and enlivens base emotions which ought to be left to wither" (Murdoch, 1977) have not entirely lost their hold over the minds of some educators.

Husén (1979) has pointed out that the school as an institution exists within a bureaucratic and formalistic setting, and that specialist teachers often hold a 'civil servant' mentality commensurate with this setting. This, in turn, implies a formal and limited conception of their role as teachers: as a consequence, educational practices show a remarkable tenacity against even highly valued efforts to change.

He has, however, illustrated the dilemma in which many teachers find themselves, as a result of the role which has been assigned to them by an achievement oriented society. Teachers are both organisers of learning opportunities, and examiners of learning outcomes. Their roles as judges and gate-keepers who determine success or failure in life are in conflict with their task of encouraging the pursuit of genuinely educative values conducive to self-fulfilment.

The Arts and Education of the Imagination

It is incontrovertible that education can lead to self-fulfilment and to a good life. One of the ingredients of a good life, according to Mary Warnock (1977) is imagination. Imagination is as basic to drama as it is to the other arts. Warnock considered that if a particular study can be shown to increase the imaginative powers of a child, then it is a strong candidate for inclusion in the educational curriculum; for she believed that educating a child's imagination increased her reflective and her perceptive capacity. She professed that such an education could lead a child "inhabiting a world more interesting, better loved and understood, less boring than if she had not been so educated."

Warnock's idea of the imagination was related to the concept as analysed by Hume, Kant and Wittgenstein. She affirmed that it was also close to the sense in which Shelley spoke of the imagination as that which made love and sympathy possible.

From evidence collected during the Schools Council "Arts and the Adolescent" project, Ross (1975) was able to describe what Warnock considered to be an education of the imagination. Ross stated that the role of the arts curriculum lay in developing the sensory experience of each pupil. He believed that an education in the arts should begin with a retraining of the senses themselves, which are the basic source of perception.

Clearly, if the arts can contribute to the education of the imagination, using the term in Warnock's sense, then no one should dispute the primacy of their role in the curriculum; however, we know that the arts are not accorded their due status and Witkin, in drawing attention to a flaw in arts education, may be pointing to a difficulty that is inherent in our culture. He stated that the arts have to do with the life of feeling and, although we have endorsed the claims of feeling in education, we can no longer articulate what these claims are.

Reid (1973) also pointed out that while the place of factual and conceptual knowledge is well recognised in education, the lack of a systematic study of the nature of feeling has had an adverse effect on the development of the aesthetic curriculum.

Witkin's use of the term 'feeling' was more circumscribed than Warnock's for she saw it as one of the component parts of imagination, whereas he drew a sharp distinction between 'feeling', 'mood', and 'emotion', giving the greatest importance to 'feeling' in the affective life. For Witkin, mood and emotion were "simply disturbance unknowing." In this, he differed from other psychologists, notably Arnold (1961) who nevertheless also saw distinct qualitative differences of experience between feeling and emotion. Arnold considered that while emotion may vary in kind, they are unlike feelings in that emotion is a more steady state, being directed towards some object, whereas feeling gives an indication of a momentary state of mind, because it focuses on only one of the aspects of an object. She concluded that while feelings can vary, emotion remains the same. Such a conclusion has been expressed more poetically:

> ... Love is not love
> Which alters when it alteration finds,
> Or bends with the remover to remove.
> Oh, no! It is an ever-fixed mark ...

Education of the Emotions Through the Arts

Macmurray also interpreted feeling and emotion in a similar way to Arnold and, in putting forward his argument for an education of the emotions through artistic activity, he lamented the fact that our European civilization is still emotionally under-developed, even though it has made great scientific and scholarly advances. He believed that our inner insensibility makes us blind to a recognition of this fact, and that insensibility has come about "as a result of a morality based upon will and reason, imposing itself upon the emotions and so destroying their integrity."

In his treatise on "Reason and Emotion," Macmurray set out to demonstrate that the capacity for reason belongs just as much to our emotional nature as it does to our intellect. He argued that feelings can be rational or irrational in precisely the same way as thoughts, through the correctness or incorrectness of their reference to reality. He added an important rider:

> It is not that our feelings have a secondary and subordinate capacity for being rational or irrational. It is that reason is primarily an affair of emotion, and that the rationality of thought is the derivative and secondary one.

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Macmurray contended that it was within the field of art that emotional reason expresses itself most directly. He believed that the value and significance of the emotional reaction of the artist to the world, lies in the way in which his emotions refer to the world. The successful realisation of a work of art is dependent upon the rationality of the artist's emotions for as Macmurray explained, "The artist expresses the nature of the objective world as apprehended in emotion." He postulated that our capacity to appreciate objective values is rooted in emotional reason.

Macmurray believed that order and objectivity could be brought to bear upon education in the arts and that the notion of what objectivity means in this area is bound up with the artist's feeling-states. Perry (1973) revealed that developments in cognitive theory are beginning to hint that some feeling-state is a necessary condition for thought to proceed at all. This was the core of the argument that Macmurray presented in the first edition of "Reason and Emotion" almost sixty years ago.

Macmurray attested that the reason why our emotional life is so undeveloped is because we suppress a great deal of our sensitiveness for fear of being hurt. He alleged that we also educate our children to do the same. The Schools Council's findings (Robinson et al., 1977) on drama in education would appear to confirm this claim.

Macmurray understood that when we increase our sensitiveness to what is lovely in the world, we also increase our capacity for being hurt, for "the capacity for joy is also the capacity for pain." Yet it is through the arts that we can educate pupils to accept the paradox that lies at the heart of life: that life is both marvellous and dreadful, for good and evil are omnipresent in life and the propensities for both are present in everyone. The masks of comedy and tragedy, symbols of the theatre, can also be seen as symbols of the human condition.

The Acquisition of Knowledge Through the Arts

The artistic form of knowledge is of the same level of veracity as the scientific, although not applicable to the same questions and with different ways of demonstrating truths. For example, Spring may be described as the vernal season, the lambing season, or as the time:

> When weeds, in wheels, shoot long and lovely and lush;
> Thrush's eggs look like little low heavens, and thrush
> Through the echoing timber does so rinse and wring
> The ear, it strikes like lightnings to hear him sing.

Knowing in the arts is not concerned with the facts of the matter. It is, as Macmurray argued, about the ordering of experience through the senses. Dimondstein (1974) noted that the challenge of using sensory data in any art form lies in the ability to create a new reality by transforming sensory impressions into sensuous forms, just as Hopkins did in his poem where, through his control of the poetic medium, he created a fresh image of Spring time.

There is a suspicion lurking in some educational circles that if something is not empirically provable, then it is of doubtful veracity. Hopkins's poem makes clear that artistic

meaning does not derive from literal interpretations, nor is it communicated through conventional language. It is abstracted from everyday experience and presented symbolically.

Dimondstein acknowledged arts' two-fold purpose: communion with the self and communication with others. This inward-outward relationship means that through the arts a pupil can come to a finer apprehension of her own feelings and experience, and recreate those aspects of them that she feels to be significant, in the symbolic form appropriate to the medium in which she is working, be that music, drama, poetry, dance or pictorial art. Similarly, she can come to an experiential, as opposed to an intellectual, understanding of the realised form of other artists.

Dimondstein considered that:

> Involvement in the arts presents a child with different ways of using his senses to perceive his immediate world and to clarify his own position within it. At the same time, it opens to him new ways of feeling and responding which nurture and enrich his concept of self.

Witkin too believed that the capacity of the child to master new and more complex levels of sensuous experience in the arts was what constituted his personal development; this could make maturity of sensuous response a possibility.

Drama Within the Arts Curriculum

Because learning in and through the arts is a sensuous experience, all the arts are ideal vehicles for training the senses and enriching the emotions. However, each art form has its unique image and appeals to the senses in its own particular way. As a result, all the art forms have their special contribution to make to emotional enrichment, for Best (1974) reasoned that the criteria for aesthetic feeling and response are particular to each art form and the emotions are inseparable from the medium in which they are expressed. Allen (1967) too believed that the different arts express different aspects of human sensibility.

The art of drama is rooted in human behaviour. Consequently, the qualitative elements through which the expressive form of drama is realised comprise of speech, silence, gesture, movement, stillness, mood and tone. Drama is essentially a group experience in actio and not a literary art. Even though the text of a play may be studied as literature, the fullness of the play can only be experienced in performance, and performance exists in the two dimensions of space and time. As Styan (1965) observed, theatre practice is both exact and economical physical space and actual time are the real and rigorous limitations of a play and its conditions of working.

Educational drama is an activity which involves pupils interacting with others to create a dynamic, immediate experience using spontaneous action, movement and speech. As an arts process, involving creativity and imagination, it engages the pupils in creating aesthetic representations of life, however tentative and imperfectly formed these creations might be. At some stage, educational drama can lead on to the appreciation of drama texts and of theatre as an art form. In addition the dramatic method of teaching can be used to capture attention

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and motivate interest in a variety of subject areas, for example: social and religious studies, modern languages, history, literature and science.

The Problem of Control in Drama

Witkin considered that some of the most pressing doubts about the value of educational drama stemmed from a lack of imposition of formal control and he made a distinction between rule directed control and reflexive control. He associated rule-directed control with being told clearly what to do and taught how to do it. He asserted that what was fundamental to the creative process was reflexive control, because it is self-expressive and concerned with direct sensuous engagement with the medium. In educational drama, as opposed to theatre, the only medium is the person and, given our national reticence about the direct expression of feeling, it is not surprising that Witkin should have noted that the major problem for teachers of drama was meeting the demands of controlling the medium. Witkin's evidence led him to conclude that most drama teachers see emotional response as a traumatic reaction, "... involving gross fight or flight behaviour or ungovernable ecstasy or tearful collapse." This is a limited interpretation of the way human beings respond to situations in life. It pre-supposes that all emotional responses are spectacular outbursts and betrays a restricted understanding of the subtle range of feelings which humans are capable of expressing, omitting, for example, curiosity, gaiety, empathy. Macmurray states bluntly that:

> It is as ridiculous to put the emotional training of children in the hands of teachers whose emotional life is of low grade or poorly developed, as it is to commit their intellectual education to teachers who are intellectually unintelligent and stupid.

However, teachers themselves are the products of an affectively impoverished education system and it may be equally true that the system itself, because it has such a strong formal and academic orientation at the secondary level, has an inhibiting effect on efforts to exercise reflexive control in drama.

Witkin also pointed to the problem of adolescents who, when they engage in creative activity in schools, are locked in a situation from which arts teachers have difficulty in releasing them. Young people want freedom to express themselves, yet they also want rules to guide that freedom of expression, for their experiences in other area of the curriculum have taught them that their success and their sense of security depend upon their capacity to grasp the rules and stick to them.

This pressure to conform is at odds with the divergent thinking necessary to creative activity, for an essential condition of the creative process is an openness to modes of exploration that depart from the provable and the predictable. Gardner's study (1973) of "The Arts and Human Development" led him to assert that formal education may be a thwarting rather than a facilitative influence in the development of artists. Torrance's studies of creativity (1962) indicated teachers had a great deal of ambivalence towards the kind of pupil who manifested such traits as originality, independence, imagination and sensitivity. Parnes (1963) concluded that "the individual's creative ability is frequently so repressed by his education that he cannot even recognize his full potential, let alone realise it." Razik (1967) attested that "The usual practices in school not only neglect creativity, they damage it."

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It seems evident that there is in many schools a lack of a facilitating environment for the development of drama and the allied arts. Indeed, children's deepest feelings and imaginings cannot be profoundly engaged by a curriculum that is deficient in the arts, especially when such a way of knowing, learning and feeling about the world is severed from the usual way in which knowledge is acquired in the secondary school. The value judgements made by pupils about what constitute worthwhile forms of knowledge to be learned are related to what teachers believe are relevant and worthwhile forms to be passed on to their pupils. Unfortunately, one of the results of the imposition of the National Curriculum in English and Welsh schools may be that teachers' practice will be dominated by the idea of what it is possible to measure and allow this to influence what they teach.

As Macmurray concluded, acuteness of perception is fundamental to artistic activity. For the artist, creation begins with a vision. He has to look at everything as though he were seeing it for the first time. Various types of artists have acknowledged the importance of their perceptive faculty. The actor, Nicol Williamson, said of his own creativity:

> Some people can remember rational processes of argument. I can't. What I do remember, after ten or fifteen years, is exactly how a man fiddled with a matchbox while he was talking. Nervously. Tensely. I slot it with lots of other details I pick up about him. Ten years later, I take them out and mix in some of myself. And then I've got something separate that I've made.

The painter Matisse also observed:

> The artist takes from his surroundings everything that can nourish his internal vision, either directly or by analogy.

In "The Nigger of the Narcissus," Conrad said:

> My task which I am trying to achieve is, by the power of the written word, to make you hear, to make you feel--it is, before all to make you see.

More than one educationist has drawn attention to the discordant institutional framework within which most teachers of drama and the allied arts work. Bettleheim (1979) said that our education system is concerned with the acquisition of a body of knowledge narrowly defined, "with the finding of ready answers to problems, answers that are already known to somebody or the test could not be scored." The arts, however, lead pupils to imaginative, experiential solutions to problems, rather than to the reproduction of right answers.

Ree (1981) also lamented that schools are not concerned to develop feelings. However, he acknowledged that the development of feelings cannot be tested by formal examinations and that "imagination is the enemy of exactitude."

Yet imagination is a uniquely human quality. Humans share their capacity for tool-making with other mammals, but the joy of creative activity is for us alone. Only we can give symbolic expression to our feelings and ideas--a process which requires perspective, judgement and selection.

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Because the arts are based on symbolic thought, all artists combine sensation, feeling and reason to create meaning in their chosen medium. The artist, whatever her medium, seeks to interpret experience in a way that broadens human understanding. If education implies a fearless inquiry into human meaning, then it is indefensible that the meaning to be found in the arts should be as neglected as it is in our schools. Can there be any psychological, educational or moral justification for ignoring or frustrating the creative talents of our pupils? The evidence suggests that we frequently do.

To plead for the primacy of the arts in the secondary school curriculum is not to adopt the melodramatic hand-wringing gestures of the Victorian actor, but to concur with Warnock that an education in the arts is an education of the imagination. Without imagination there can be no flexibility, only rigidity. And, undisciplined, the imagination is incapable of perceptual clarity. An education of the imagination would keep us in touch with the reality of the human spirit, as well as with our material reality. Already, man's technological mastery has almost overcome his humanity. The act of human creation can now take place 'in vitro'. The way the gap between man's technological power and his imaginative paucity may be horrendously filled must be felt as a reality, if we are not all to be bound upon a globe of fire.

So we return to the relationship between morality and art. Morality, according to the late Sir Alfred Ayer, formerly Wykeham Professor of Logic at Oxford University, "is very largely founded on sympathy and affection." Sympathy and affection are encompassed by Warnock's (1977) definition of the imagination, which is developed by an education in the arts.

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INTEGRATING THE FINE ARTS INTO CHILDREN'S EARLY FORMAL EDUCATIONS

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A group of university students training to be early childhood educators is given the task of creating artistic expressions to celebrate young children. They begin by brainstorming words, phrases, and sensory images associated with young children. After all their ideas are listed they begin their work. In small groups they review the list of ideas, deciding on a theme for their expression. In a flurry of activity, with music, as requested, in the background, they discuss the theme, developing and settling on design ideas. Then they choose materials which will best suit the design, assign duties based on individual strengths and interests, and begin their work. As the project begins to take form they reconsider their original plan, solve construction problems, reorganize their thoughts, and add details. One group must begin again when an idea fails to turn out the way they envisioned. They manage their time, title the piece and sign it, proud to take ownership of their work. These banners, collages, and sculptures reflect what they truly understand and believe about early childhood education. They show a respect for diversity, an understanding of the effect of the environment on young children, the importance of play as a learning medium for young children, their affection for and commitment to children and their understanding of their role as advocates for children.

Although this work may appear a bit childish and may seem insignificant to some adults, in this instructor's mind it truly reflects an integrated art experience. What Mayesky (1990) calls "aesthetic learning...joining what one thinks with what one feels...Having feelings about what one learns makes learning a human experience" (p. 24).

In 1917 John Dewey called for "the engagement of students in the 'complete act of thought,' or reflective thinking through the problem-based curriculum" (cited in Shaw, 1994, p. 1). In 1994 this same idea, in myriad forms, called by myriad terms, has been revisited, revised, rethought, and revalued as *the* pedagogical scheme. Integrated and interdisciplinary courses are more common in college programs and in-service teachers ask for more integrated curriculum courses for professional development. Much of this movement has been based on the literature about and success of whole language programs in primary education, the team planning and content delivery approaches in middle level education and the success of thematic teaching in early childhood programs.

For the past several decades many early childhood education professionals have been using a thematic approach to teaching young children. They have known that "children are wholistic individuals who learn in wholistic ways" (Schirrmacher, 1993, p. 76). They have accepted that "one of the most important premises of human development is that all domains of development are integrated. That development in one dimension influences and is influenced by development in other dimensions" (National Association for the Education of Young Children [NAEYC], 1987, p. 63).

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Children develop understandings of concepts through seeking solutions to concrete problems. Learnings about math, science, social studies, health and other content areas are all integrated through meaningful activities. "The relevant principle of instruction is that throughout the primary grades the curriculum should be integrated" (NAEYC, 1987, p. 63).

Early childhood educators also know that young children are interactive learners, learning best from self-directed problem-solving and experimentation. They know that relevancy is essential. That information must be meaningful to the child in the context of the child's experience and development. It is understood that if learning is relevant for children, they are more likely to persist with a task and to be motivated to learn more (NAEYC, 1987). In addition, early childhood educators know that "creativity enhances child development in all areas...it fosters success and mastery, since there is no one right answer involved. In turn, successes accumulate and enhance positive self concept (Schirrmacher, 1993, p. 61).

Varied approaches to learning a concept work best for young learners. Lilian Katz's work (1990) has shown that "the younger the children the less likely they have been socialized into a standard set of behaviors and the *more* diverse methods are needed."

This is supported by the work of Howard Gardner and the theory of multiple intelligences (cited in Kovalik, 1993). If one believes that the brain processes information using several different intelligences, and that we are each born with all these intelligences in place, and that we tend to develop those intelligences that are valued by our culture, we can understand the importance of variety in presentation of information and delivery of content in order to serve the 'whole child's' needs. Only then can the curriculum truly become age and individually appropriate for the young learner.

Using the arts as the integrating tools in curriculum for young children makes a great deal of sense. According to Lasky and Mukerji (1980), children are expressive beings, less inhibited in their expressions than their adult counterparts. They naturally use graphic art, drama, music, poetry, storytelling as a means to act upon and show understanding of the complex world around them. "Young children naturally integrate the arts unself-conciously and their expression in one art form stimulates greater expressiveness in other arts" (p. 129). This follows what we know about the development of the whole child, "that developmentally appropriate curriculum provides for all areas of a child's development ...anything that affects one area of development affects others" (NAEYC, 1987). Children "are not hampered by the conventional labels used by adults to separate art expression ...[they] intuitively treat the arts as interrelated, which they are because all the arts have important aesthetic elements in common: color, pattern, line, space, rhythm, and contrast" (Lasky and Mukerji, 1980, p. 130).

If we take this talent young children already have for making connections between the arts and apply it to their general learning of concepts we are able to see how "the expressive arts help in the processes of cognitive learning about the world...processes such as sensory awareness, perceptual awareness, association and generalization" (Lasky and Mukerji, 1980, p. 137). The alert early childhood educator draws children's attention to the sensory beauty of the world around them. Slhe comments on and demonstrates an appreciation of common

objects. Each new object brought into the classroom is investigated with all the senses. Young children painting on a rainy day want to understand how to make the picture look like the rain is falling. With the teacher's guidance they begin to discover the principle of water as a thinning agent as they wet their paper, add water to their paints and mist their final paintings with water. The teacher guides the children to an understanding of pitch as it relates to the length of autoharp strings and the tightness of the keys as s/he carefully investigates the instrument with the group. "There should be a constant exchange, not only among all the arts activities, but among all subjects. This prevents children from creating a false separation between work and play, art and learning, and thought and feeling" (Mayesky, 1990, p. 24).

Probably the most significant connection created by the integration of the arts into the early childhood curriculum is the link between artistic expression and the concept formation skill of representation. Schirrmacher (1993) says that "children who can express what they know about their world will be at an advantage later when they are expected to write and read about it. Signs (words) spoken or in print must have some referent. Art gives children the opportunity to symbolize that referent and serves as a bridge between object and sign" (p. 37).

Children's initial translations of real experience are often coded in artistic symbols. Children from non-spanking homes will dramatically slap the doll's buttocks trying to figure out what this behavior is all about. Children strive to create artistic depictions of the human face long before they can write the words, describe the feelings, or describe the relationships between people. They draw tears to depict emotions and use figure proximity to indicate relationships between significant people in their lives. In order to learn how to pump a swing, children will chant or sing the rhythm they can feel is necessary for the task. They depict the changing colors of the autumn leaves with brilliant paints in sketch books much more accurately than they could describe it in words. In the early years of life, expression is physical, sensory and dynamic. It is only after they practice these types of expressions that they begin to use the more traditional symbols of written language.

This type of expression is not easy nor does it lack depth. As Schirrmacher (1993) tells us "translating ideas, concepts, and experiences into art involves many thinking skills. One must decide what to represent and how to execute it...he must plan, organize, and make choices. Art involves concentration, staying on a task, and seeing it through to completion--all important work skills and habits" (p. 36).

Although this author is convinced that arts integration is valuable, that it is supported by findings in child development and in our understandings of how the brain processes information, and that it is the model that current teacher education students will be expected to know and help create in the future, there are some interesting challenges in teaching this paradigm.

The first challenge lies in the fact that the current undergraduate students were not educated this way. They came through curriculum models in the late 1970s and 1980s that were focused on fundamentalist and back-to-basics principles which were a reaction to the 1960s relevancy and electives movement (Shaw, 1993). Their primary, secondary and university experiences have been discipline-centered and fragmented. This has indeed affected their ability to make connections between disciplines.

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As a result of this type of training they have compartmentalized their learning. Student teachers keep physical and mental files of information under headings such as the course or instructor's name. So, when they want to teach math concepts they go to their math methods course file or they think of what Professor X taught them. They have a hard time breaking up these files or cross-filing the information in other areas of their filing cabinet or their brain.

Teacher education students tend to feel most comfortable teaching the way they were taught at the same time they embrace the 'new' integrated model. Students placed for field work in integrated classrooms struggle to define their role and the role of their cooperating teacher. They often comment on the lack of 'teaching time' spent in front of the whole class and the amount of disarray and confusion in the classroom environment as students work on several projects at one time. In their mind, the teaching role still has to do with dispensing a body of knowledge to large groups of children. Those students who have practiced integrated models in their university classrooms seem to have less trouble with this.

One of the major goals in arts integration courses should be to help the teacher in training experience what it is like to learn in an integrated way. Lilian Katz (1990) says that "one of the important dispositions of concern to educators of young children is *interest*, or the capacity to 'lose oneself' in an activity or concern outside of oneself" (p. 45). By walking teacher education students through artistic experiences the instructor hopes to renew and deepen the impact of the creative act on the students own level and on their own lives. It is what Lasky and Mukerji call "adult exploration and renewal." A process by which educators "learn about processes and materials that are new to them or with which they have had little or no recent experience (p. 28).

After their first-hand encounters with these processes, the teacher education students are more confident when children explore and use them. In addition, they seem better able to prepare the materials and more effectively guide children. It seems that adults see greater potential in certain materials when they try them out. This approach has been very successful over the years. Students report greater confidence and willingness to integrate the arts into their curriculum. In addition, the university instructor often benefits from a greater bond with the students based on trust, risk-taking and a success orientation in the classroom.

This author's understanding of integration has changed dramatically over the years, as a result of experience and the review of research. It continues to be a challenge leading students toward depth in their understanding of this model. In addition, this instructor has had to work hard to become the kind of model that will best demonstrate what role is appropriate for teachers working with an integrated curriculum approach. Students work together to develop what Jacobs (1988) calls "the teacher, as environment, who sets the tone for the learning experiences and thus encourages or discourages creativity" (p. 226). Using her model, students and the instructor try to develop their skills related to the teacher as a personality, an explorer, an expert and an artist.

The benefits of this model are articulated in the work done done by Willis (1992) who shows the following differences in learning when disciplines are linked: higher level thinking skills are used to draw connections between disciplines, more long-term learning takes place through these multiple connections, there is a sharper understanding of the disciplines through

relational definitions and comparisons of them, and linking the disciplines tends to spark insight, creativity and thoughtfulness. This author's observations lead her to believe those successes occur with young children and with young adults as well. Both seem to benefit from integrated learning experiences in similar ways. They begin to make connections between what was previously fragmented, they are focused and motivated, often working longer than asked and going beyond the initial assignment, they become more thoughtful about what they know and willingly report moments of insight, they appear to be more confident, they are more willing to take risks, they are more inventive, they work better together, and they are more able to articulate what they know with passion.

Good early childhood educators will then continue what has always been appropriate practice--to follow the child's natural approach to learning--which is an integrated style. "As teachers, we have the opportunity--and the obligation--to enhance children's natural modes of complex, integrated learning by fostering multichannel experiences in the arts. Fortunately, children give us the pattern and cues for learning through interweaving arts in their spontaneous play" (Lasky and Mukerji, 1980).

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SCHOOL-UNIVERSITY PARTNERSHIPS IN TEACHER EDUCATION

PARTNERSHIP IN SECONDARY SCIENCE TEACHER TRAINING

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At the last meeting of this colloquium held in La Crosse, Furlong (1992) reported the changes that were taking place in the methods of preparing teachers in Britain. He highlighted the importance of the mentor in helping the trainee teacher to develop his/her teaching skills and achieve competence in essential classroom practices. The purpose of this study was to monitor the progress of a group of trainees, all science students, as part of the first cohort to experience this new way of learning to become a teacher. It was new in the sense that both staff in the schools and staff in the Education Department had not been involved in working so closely together in the training process. The role from school teacher to mentor was new, taking teachers from their previous position of supervisor and assessor to guide, supporter and advisor on pedagogical practice. It was a valuable opportunity to evaluate the methods of training used and to review the roles played by the tutor and mentor.

Like all Postgraduate Certificate of Secondary Education (PGCE) courses in England and Wales, the course in the Education Department at University College of Swansea has to comply with criteria set down by the government (Department for Education and The Welsh Office, 1992). The criteria govern aspects such as:

the minimum length of the course (36 weeks);
the proportion of school and college based work (minimum of 24 weeks in school);
the competencies that trainee teachers must satisfy in order to become teachers.

Accredited PGCE courses must be jointly planned, managed and taught by staff from Higher Education Institutions (HEIs) and schools. The Government expects that partner schools and HEIs will exercise a joint responsibility for the planning and management of courses and the selection, training and assessment of students.

In Swansea we work with 32 partner schools in four different Education Authorities in South Wales including three schools that are grant maintained. Each school has selected staff that work with counterparts in the Education Department, including a Senior Mentor who has overall responsibility for all the students in the school. Typically a school would accommodate 8 to 10 trainees who would be paired in each subject (e.g., 2 chemists, 2 modern linguists, 2 geographers, 2 mathematicians and 2 English trainees). Each pair is placed under the care and supervision of a subject mentor who works with the subject tutor in the Education Department. Each tutor will work with 8 to 10 mentors, meeting them once or twice a term for planning and debriefing sessions and liaising with them in the schools about the progress of the trainees.

In order to help the trainees to progress it is necessary to identify those dimensions that go together to make a good science teacher and help the individual to make the most of the skills and abilities they possess. I have chosen to use a framework based upon the following seven categories:

Personality characteristics

One frequently hears the remark from people that have been involved in the educational world for a number of years, and even from those who have not, that they can spot a good teacher after being in his or her presence for only a few minutes. Those of us who have been fortunate enough to have had a wider experience in the profession understand that there are many components of a person's personality such as tolerance, the ability to get on with others, the understanding of young people and the way they behave that help them in their work. Clearly, it is not possible to alter a person's innate personality within the duration of a PGCE course but it is possible to draw to an individual's attention those aspect of their character that they should develop and those that they should quell.

Ability to control pupil behaviour

This is an aspect of teaching that causes the most concern to the new entrant, the fear of not being able to control a class. The partnership scheme helps trainees to acquire the skills of classroom control by slow emersion through collaborative and paired teaching until they are confident that they can take a class on their own.

Knowledge of how pupils learn

Everybody has their own theory of learning, some are more ingrained than others but most, if not all, of the trainees not unexpectedly base their ideas on their personal experience. The course forces them to question and challenge those beliefs, considering how they might motivate even the most disinterested child to learn.

Teaching skills

It may be a slip of the tongue when entrants to the course refer to 'lectures' rather than 'lessons' or it may be that having been subjected to this approach to learning from such an august body as university professors, they believe this to be the best way of imparting knowledge. The course introduces them to a wide variety of teaching approaches and the idea of matching the technique to the needs of the pupils.

Organisational skills

In order to carry out the job efficiently a teacher needs to be organised but these skills are called upon to a much greater extent in subjects such as science where complex practical tasks have to be organised involving the use of a multiplicity of equipment and materials that all needs to function during the lesson.

Knowledge of subject

The qualification rule for selection onto a PGCE course is relatively simple, in order to teach a subject you should have a bachelors degree in that subject. In the case of science, however, the degree will be in chemistry or physics or biology and yet the

trainee will be required to teach all branches of science. Many newcomers to the profession find this particularly challenging both in terms of their subject knowledge and knowing where to obtain suitable teaching resources. From the 1993/94 cohort, only a very small percentage, 14%, have post-16 qualifications in the two branches of science that are not their degree subject. The time interval between the completion of their last subject related academic course and starting the PGCE course can also have a marked effect on the level of knowledge. While the majority of trainees are in the age range 21-24 there are always a significant few who have either decided upon a career change or who have been made redundant from their previous work (see Figure 1) and have thus had a long break from any type of formal learning. Teaching unfamiliar aspects of science can cause the trainee to feel insecure and may result in the lesson being pitched at an inappropriate level. Sanders and co-workers (Sanders, Bark and Lacerate, 1993) have shown that even experienced teachers can fail to teach quality lessons when asked to teach an area of science where they have a low level of background knowledge.

Practical ability and awareness of safety

Working with plants, chemicals, equipment and both dead and alive animals can cause difficulties. Teachers need to learn the necessary manipulative and other practical skills to pass on to their pupils. In addition they need to develop the art of carrying out demonstration experiments so that they are clear, motivating and involve the pupils as much as possible. Unfamiliarity with experiments can prove to be dangerous leading to possible injury to the pupils and the teacher. Trainees require practice at evaluating practical work for laboratory hazards and learning how to deal with situations when they go wrong.

The 1993/94 Science Course

As one might expect, there is little variation in the nature of the people that enter a science PGCE course from year to year. The majority have obtained second class honours degree (see Figure 1) in one of the science subjects, some have come directly from their undergraduate course, but an increasing number have gained experience in the world of work. This is reflected in the situation nationally. Smithers (1994) reports that in spite of the wide fluctuation in application levels over the last ten years, the entry qualifications of teachers have remained very much the same.

The course aims to gradually improve the trainees' skills by a process of visiting and ess as a teacher. Professional growth is complex and multidimensional leading to changes in knowledge and beliefs. Kagen, reported in Elliot and Calderhead (1992) in reviewing revisiting aspects of classroom work, through college and school based sessions. It would be naive to think that improving skills alone will lead to increased effectivenrecent research on teacher learning concludes that growth occurs within a number of domains:

1. There is an increase in knowledge that novices have about their pupils, how they learn and the importance of their backgrounds;

2. The focus of beginners' concerns moves away from themselves as actors in the classroom to those learners to whom their teaching is directed;

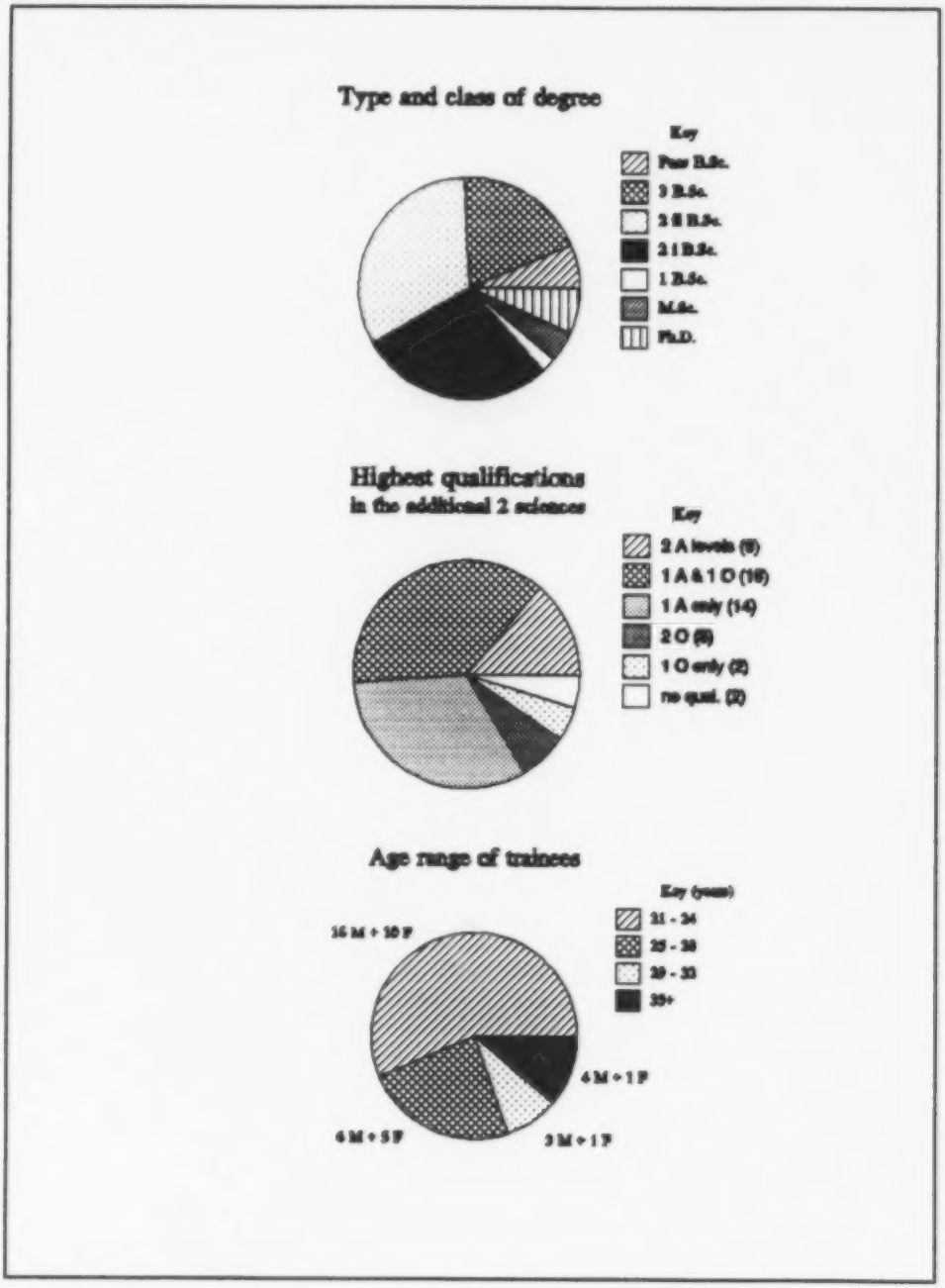

Figure 1. The qualifications and age distribution of the 1993/94 cohort of PGCE science students

3. Routines for teaching become automated and the need to think through each minute step is diminished;

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4. Novices become more aware of their own thinking about what they are doing and its impact on pupils--there is an increase in metacognition;

5. There is an increase in instructional problem-solving on behalf of the beginning teacher which is 'more differentiated, multidimensional, and context specific'.

Such growth can only occur through a determined effort by the trainee to learn from individuals within the school and college, their own reading and by reflecting on their current practice. The key to making successful progress must lie within the trainees' capabilities for internalising pedagogical ideas and recognising what is going on inside the classroom. As such it is an intellectual process and requires the trainee to organise his/her thoughts based on the knowledge received.

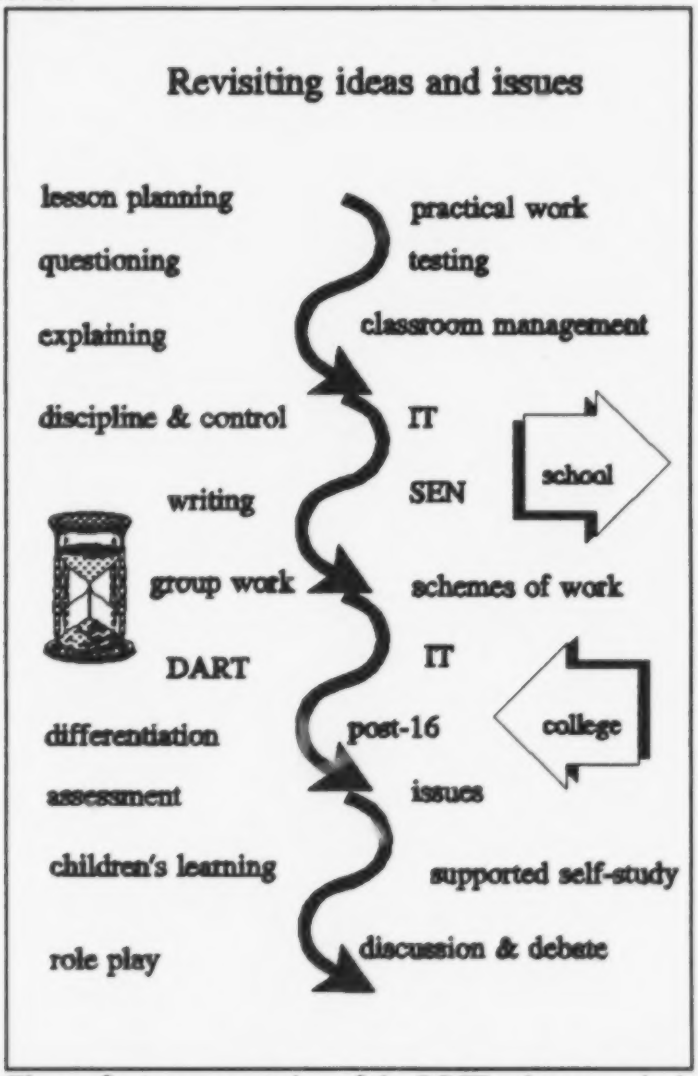

Figure 2: A representation of the PGCE science curriculum indicating the cyclical nature of the process and the interaction between school and college

The content of the science component of the PGCE course in Swansea is similar to other PGCE courses in England and Wales, with a emphasis on teaching and assessing national curriculum science but the balance of topics will vary from institution to institution. All sessions are multifaceted and, for example, a session on 'energy' would consider pupils' understanding of energy, planning lessons, the sequencing of concepts, practical activities and some suggestions for assessing pupils' knowledge. The spiral curriculum model (see Figure 2) would mean that trainees have the opportunity to re-examine these issues in similar activities or situations throughout the course at a comparable, or deeper, layer of understanding.

In order to evaluate the college based contribution it was necessary to identify the time spent on the different activities. While any such process cannot be completely accurate due to the overlapping nature of some sessions it does give a picture of the foundation upon which the trainees can build their professional development. Table 1 illustrates the major components of the course and, in order to give an idea of the emphasis given to the various aspects of the work, the approximate percentage of time dedicated to that topic.

The high percentage of time allocated to improving the trainee's knowledge of the subject can be justified in a number of ways. In the first instance in many of these sessions the subject (e.g. electricity) chemical reactions is used as the medium to discuss aspects of

Knowledge of subject and curriculum		21.6%	21.6%
Lesson planning		7.2%	7.2%
Teaching skills incorporating: 1. How pupils learn 2. Class management and control	General	6.5%	56.8%
	Practical work	15.8%	
	Language and learning	10.8%	
	Mixed ability	2.9%	
	IT	7.9%	
	SEN	1.4%	
	Post- 16	11.5%	
Issues	Equal opportunities	2.1%	6.3%
	Primary-Secondary liaison	2.1%	
	Key stage 4 courses	2.1%	
Assessment		7.9%	7.9%

Table 1. Curriculum studies in science showing the approximate time allocated to each area of study: The college tutor's contribution

teaching and learning. Second, it is used as an opportunity for trainees to test their own understanding of important areas of the curriculum and third, the actual mechanics of coming

to terms with the requirements of the science national curriculum and its assessment can be quite taxing even for the most able of trainees.

Just over half of the course is specifically directed towards helping trainees to develop their teaching skills. The emphasis is on enabling the trainee to establish classroom situationswhere the pupils are actively involved in the learning process rather than passive recipients of knowledge. This approach is well established amongst teacher educators but has been resisted to a large extent amongst classroom practitioners in England and Wales. While it is difficult to isolate the exact reason for this I should like to speculate that part of the explanation is to do with the excessive demands made on teachers over the last five years or so with the introduction of the national curriculum. Tobin (1993) reports on the difficulties experienced by teacher educators of getting trainee teachers and experienced teachers to adopt a constructivist approach to their science teaching. His research describes a three year period during which one teacher overcame resistance from her objectivist practising colleagues. Russell (1993) offers the following advice to teacher educators who wish to inculcate an active learning approach with their students:

- If teaching can be analyzed with rigor and depth, then teacher educators must do it in their own teaching and share the process with those learning to teach.

- If innovation is possible in schools, then teacher educators must model it to those learning to teach, and share the pain as well as the reward.

- If students' present ideas should be considered in teaching (following a constructivist approach), then that view should also guide the development of learning experiences in the classrooms of teacher education programmes.

- If 'active learning' is to take on meaning in schools, then it must also have meaning in classrooms of teacher education.

Her Majesty's Inspectors are also of the opinion that trainees will learn by example and point out that a HEI tutor should use good practice in his/her own teaching.

> Typically good practice at PGCE level is illustrated by an example from an institution where it was an established principle that tutors' teaching methods should afford students good examples of planning, presentation and evaluation (HMI, 1987).

It is clearly also important for trainees to see these teaching methods being used in schools. As will be illustrated later in this paper there appears to be a resistance to implementing these techniques from some teachers. While this may be due to a lack of resources or insufficient in-service training Parkinson (1994) argues that many of the existing classroom practices can readily be modified so that pupils are 'doing' and 'thinking about' science rather than trying to remember lists of so called science facts.

A major component of the course examines ways that work can be matched to suit pupils' different abilities and how to cater for these needs within a mixed ability situation.

Many trainees develop an interest in working with children with special educational needs (SEN) and prepare science materials and activities that will help them to learn.

Practical work will be considered in detail later as an example of the stages that trainees pass through but it is worth mentioning here that during the college based component of the course all students must carry out a range of practical tasks and attend a session devoted to aspects of safety in the laboratory. It is surprising how many newcomers are casual in their treatment of hazardous materials and will neglect to take adequate precautions unless the dangers are pointed out to them. The use of information technology (IT) in science has opened up previously unknown areas in practical work with the possibility of taking measurements over very short or very long periods of time. Trainees are also introduced to other aspects of IT such as word processing, desk-top publishing packages, databases, spreadsheets and simulation software and how they can be used to help pupils to learn.

Most trainees spend their initial period of teaching with classes of pupils in the age range 11-16 but as time goes on they are given the opportunity to teach older pupils. As the demands on them change they need to prepare themselves for a switch in teaching approach, attitude towards their pupils and the increased intellectual demand of the subject matter.

Issues such as environmental concerns and industrial and economic factors play an important part in the nature of the course. Trainees are informed of the value of working closely with colleagues from other disciplines within the school who have common interests in teaching these cross curricular aspects of work.

Other types of issues, such as ensuring that pupils experience a continuity of curriculum from 5-16 and that the matter of equality of opportunity both in terms of race and gender are addressed throughout the course but receive special time tabled slots to ensure that they are clearly brought to the forefront of student agendas. Many trainees initially find it difficult to comprehend that their science lessons are not value free. They see science teaching solely as imparting a body of knowledge and neglect to see the image both they and the subject matter impart to the pupils. The future of science and the scientific literacy of the next generation is dependant upon the teachers being trained now. Ginsburg reminds us in his thought proving book, Contradictions in Teacher Education and Society: A Critical Analysis, that on the one hand we are preparing teachers for school and society as it exits at present and on the other hand we are asking the students to challenge existing viewpoints in order to help to create a society with real equality of opportunity (in terms of race, gender and social class).

Influences on the Performance of Trainee Teachers

It has been pointed out that the people entering a training course come from very mixed backgrounds with different images of the classroom and how pupils should learn. How do these trainee teachers build themselves a model of a teacher? There are a number of individuals that will influence the stance they will take as shown in Figure 3.

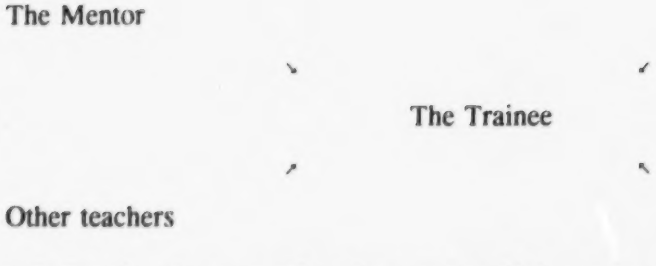

Figure 3. People who may affect the way in which a trainee performs in the classroom

Prior to the introduction of the partnership scheme, the tutor and the teacher in charge of the student each had a way of doing things. As the scheme develops and the two groups 1come to work more closely together there will be clearer common goals. As it stands at the moment the quality of the experience is variable with some students receiving a great deal of mentor support and others receiving little more than they did under the old system. Some mentors find it difficult to explain what they actually do within a classroom, it has become so ingrained and commonplace for them to go in and teach that they are unable to put into words what actually happens. For example, when trainees ask experienced teachers about how to control a particularly difficult class some are greeted with the response 'they always behave for me'. It can be a devastating blow to a newcomer to find that the class does not behave even when s/he attempts to reproduce the characteristics of the experienced teacher. The problem of gaining access to teachers' classroom based knowledge is one that needs further examination if the partnership scheme is to achieve its full potential.

It is inevitable that the mentor and the particular school environment will play a very significant role in shaping the new teacher if only because of the proportion of time spent in the school compared with that spent in the HEI (112 days in school compared with 58 days in college). The trainee must fit in with existing practices within the school and many mentors believe it important that the routines of classes are disturbed as little as possible. As mentioned previously, some teachers have fixed views on which are the most appropriate strategies to use in a classroom and many of these have not incorporated active learning approaches into their lessons. This can be illustrated by looking at the take up of what I have called 'spoken language activities' which covers techniques such as role play, class discussion and class debate. Table 1 indicates that a significant proportion of time is spent on explaining and practising these techniques in college. Using questionnaires trainees and teachers were asked to indicate the frequency of use of certain teaching techniques using a scale from 'used very frequently' = (A) to 'never used' = (E). At this stage of the investigation the trainees have been questioned twice, once at the end of their first period of school experience (after seven weeks in school) and again after their second period of school experience (a total of fourteen weeks in school). The results show (figure 4) that the trainees have changed little over the time and that they very closely match the teachers' profile.
A similar situation can be seen when examining the use of active reading techniques which generally go under the acronym DART (Directed Reading Related to Texts). Over sixty per cent of the teachers questioned either rarely used or never used this technique. While there are some similarities in the students profile it is heartening to note that there was a slight increase in the use of DARTS activities by the end of the second term (figure 5). This is

possibly due to the fact that the main input on this activity comes in the college based sessions at the start of the second term.

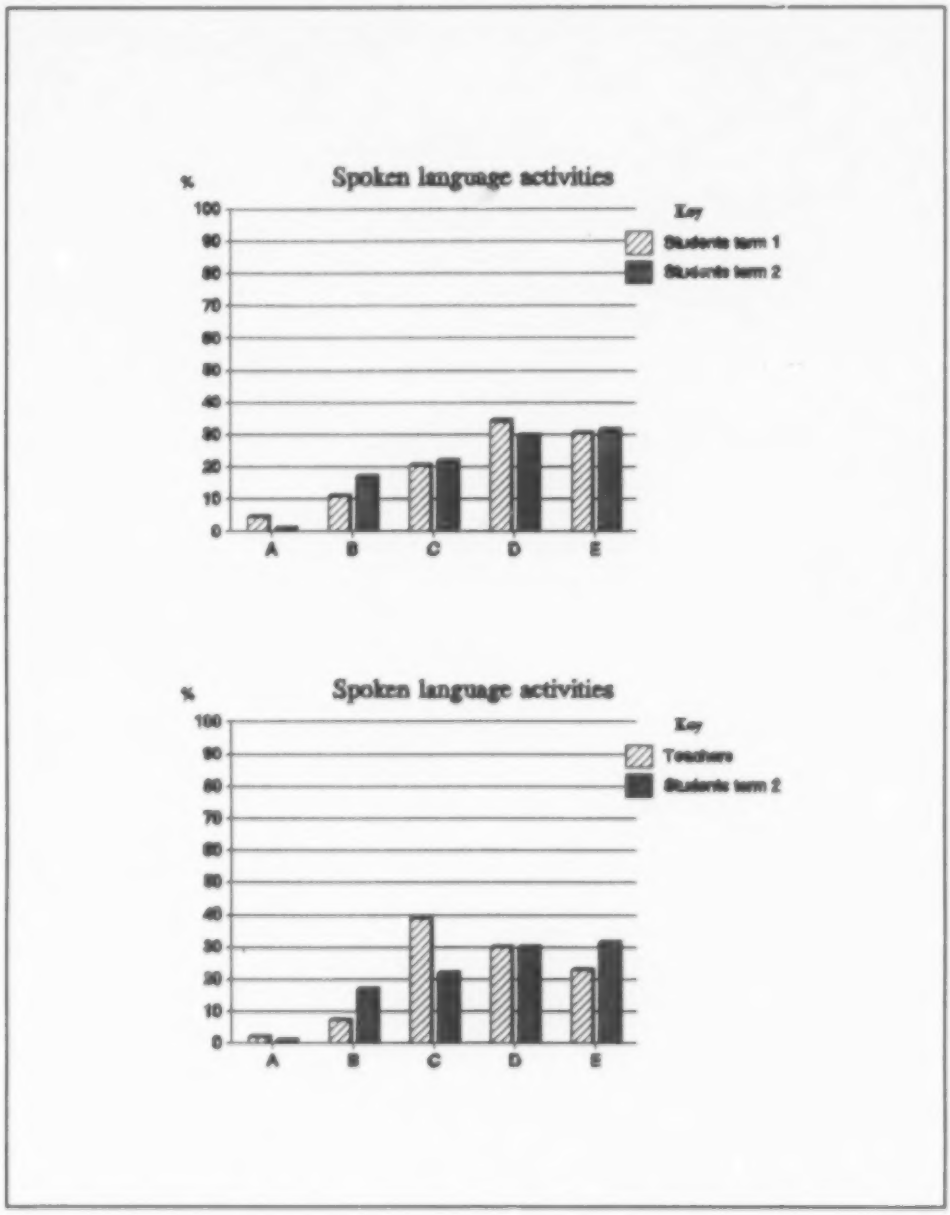

Figure 4. A comparison of the frequency of use of role play, class discussion and class debate by mentors and trainee teachers

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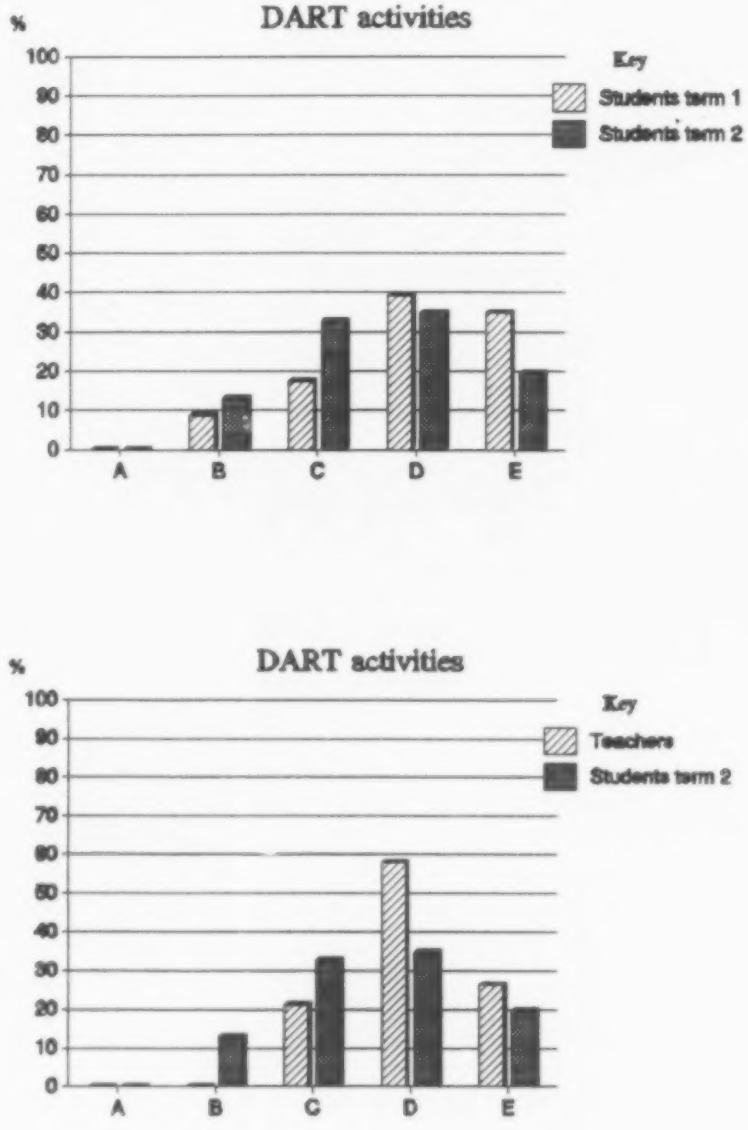


Figure 5. A comparison of the use of Directed Reading Activities Related to Texts (DART)

In order to help trainees to make progress it is important to understand how they picture the various facets that go together to make up a lesson. Maynard and Furlong (1992) have identified a number of distinct stages of development, each with its own focal concerns, that trainees typically go through. These can be grouped under the following headings: early idealism; survival; recognising difficulties; hitting the plateau and moving on. In order to try to identify these stages and thereby design a timed support strategy for the future all science students have completed a series of questionnaires and a sample have been interviewed.

- Early idealism

  Here the images of their own school days play an important part in defining their approach to teaching. It may be that they try to emulate a particularly inspiring science teacher or they 'just know' they could do better than the 'boring old biology' teacher and 'why were those teachers so unfriendly?'

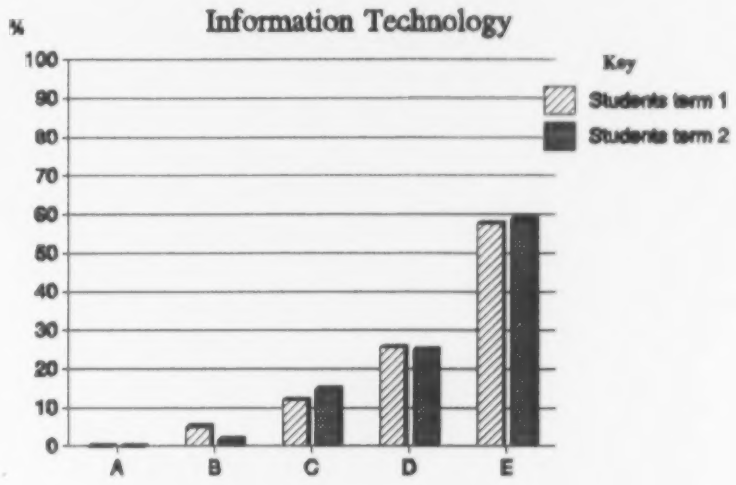
- Survival

  Once the realities of the classroom have sunk home and the student begins to comprehend that they cannot just walk into the classroom and expect pupils to hang on their every word, their concern turns mainly to classroom control. Their attention is directed towards the immediate as they look for quick solutions for today's problems and blank out of their mind any long term development.
  Examples of comments from trainees at this stage of development when asked about their concerns included:

  'Better planning', 'to become more organised', 'concentrate on my class management','I wish to establish a working relationship with my classes'

- Recognising difficulties.

  Once the trainee has begun to get to grips with classroom control, has learnt the names of the pupils s/he teaches and has started to develop a rapport with the classes then s/he has the confidence to try out different approaches to teaching. The influence of the science tutor can play an important role at this stage as the trainee feels secure and starts to recognise the significance of some of the work carried out in the college. There is an eagerness amongst good students to experiment with new techniques. Cynics might say that some students carry out these activities with their classes to appease the college tutor who they see as the person who will ultimately decide their fate as a teacher.



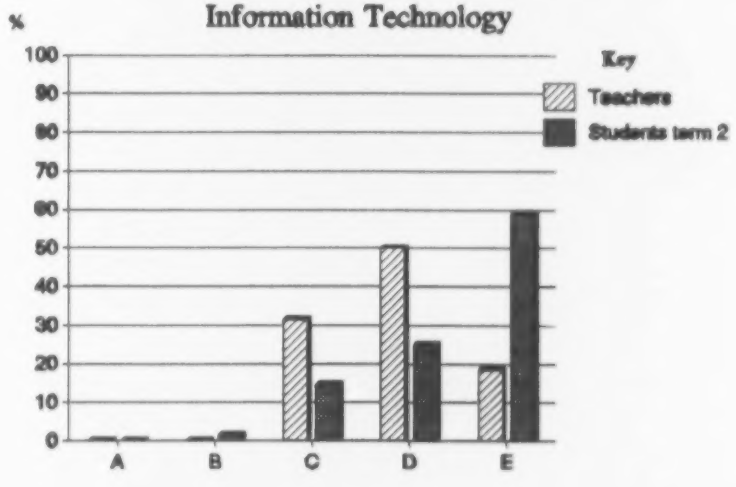


Figure 6. A comparison of the use of IT by both mentors and trainees

Typical comments of concerns from trainees at this stage of development included:

'use of IT in the classroom', develop Sc1 investigations', 'being able to teach special needs',' to improve generally on the whole range of skills required of a teacher', 'to improve questioning'

The 'use of IT in the classroom' raises some interesting questions about the amount of time spent in the college on this area compared with the limited opportunities for trainees to use IT in science lessons in school. Figure 6 shows that there is little change in IT use from one period of school experience to the next with over fifty per cent of the trainees not using IT at all. The teachers themselves do not use IT to any significant effect with almost seventy per cent rarely or never using computers in their teaching. While it is difficult to pinpoint the reasons for this lack of use possible explanations include:

- teachers have rejected it as a way of helping pupils to learn;
- the rapid advancement of computer technology has left some teachers inadequately prepared for coping with the range of equipment available in schools;
- the lack of subject specific software, particularly software for the latest generation of computers;
- the demands of the science national curriculum have been so great that there has been insufficient time to channel their energies into examining ways of using computers in science lessons.

It appears that this phenomenum is not peculiar to Britain, a study of Australian student teachers (Downes, 1993) showed that less than 50% of students were using computers by their final (3rd) teaching practice.

- Hitting the plateau

This is the stage where the trainees are content in their own performance, the lessons run smoothly with the minimum of disruption and they believe that they have 'cracked it'. It is as though the ability to attain good classroom control is the ultimate aim. The trainee focuses attention on himself/herself, for example on the amount of work s/he can get through in a lesson, rather than being concerned about what the pupils are learning. It comes as a major shock to the trainee that when they test the pupils they are unable to get all the questions correct.

Concerns voiced by trainees at this stage of their development include:
'money', 'getting a job', 'essays', 'teaching outside my subject specialism', 'although pupils are impressed with my lessons in terms of activities, content etc, I am concerned that I will not meet the department's requirements to cover a certain amount of information in the time given'.

- Moving on

To move them from this position of complacency there is a need to direct the trainees' attention towards pupils' learning and to help them to evaluate their lessons more thoroughly. Up to this point reflection has tended to be on a rather superficial level, centred around the mechanics of the lesson e.g. remembering the books, organising all the equipment, getting through all the lesson material and aspects of class control. In order to help trainees through this stage we have found it helpful to revisit the work of the Childrens' Learning in Science Project (CLIS, 1987) and examine some of the misconceptions held be pupils in key science concepts and to jointly devise strategies for helping pupils to learn. Helping trainees to increase their depth of reflection has proved more difficult. Calderhead (1988), in his research on trainee primary teachers, reports on the rejection by the trainees to tutor feedback that attempts foster reflection. He gives a number of possible reasons for this:

they may actually be unaware of aspects of teaching events mentioned by the tutor;
they may feel defensive;
they may not understand the tutor's comments, and
they may tend to assess themselves with reference to their supervising teacher who becomes part of their day to day teaching experience.

A possible way forward is for the tutor and mentor to change the emphasis of post lesson questioning to investigate aspects of the lesson which go beyond the trainee's performance and focus in on specific individuals within the class. As part of their ongoing reflection the trainee could monitor the detailed progress of a sample of pupils from each class taught.

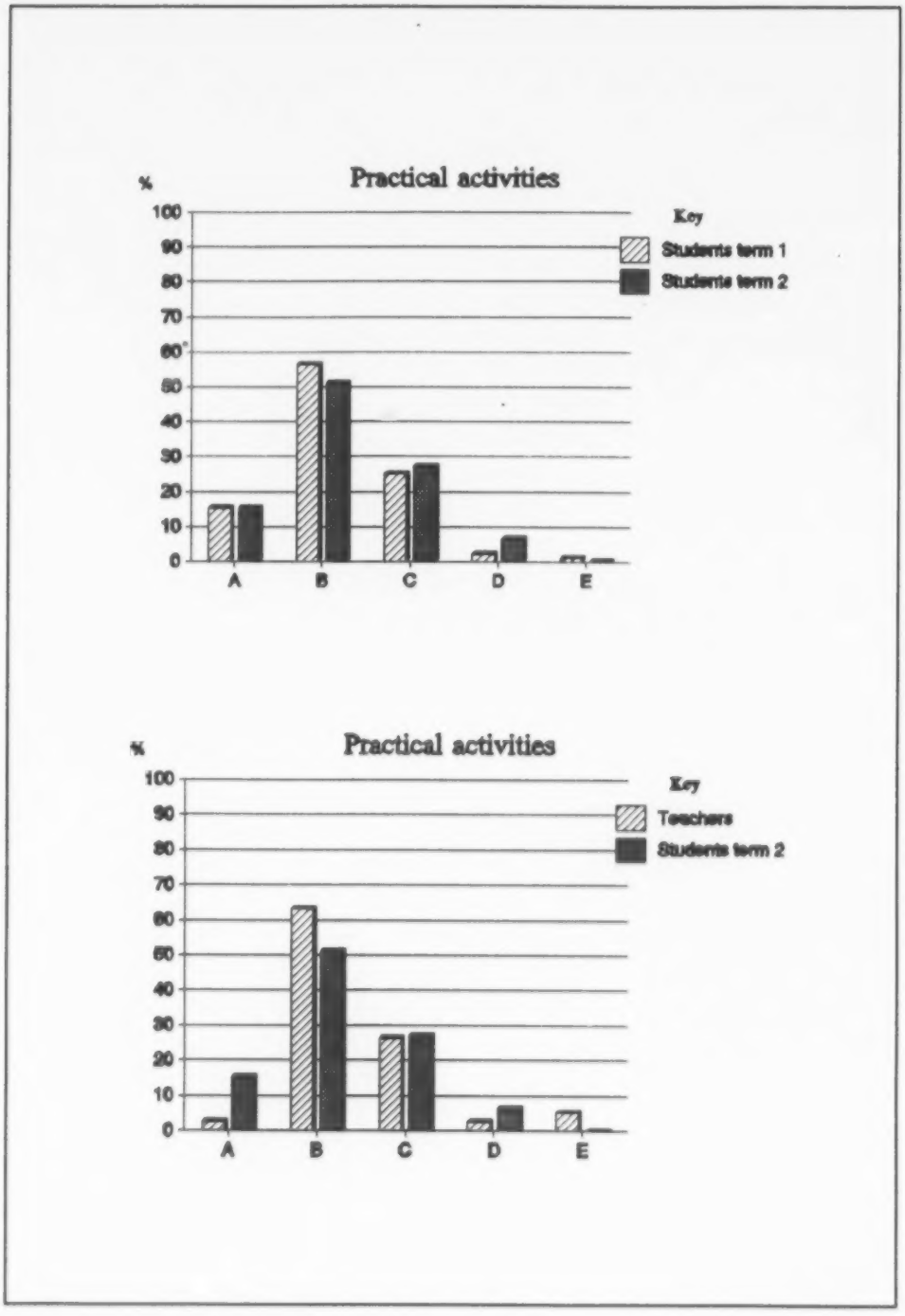


Figure 7. A comparison of the frequency of use of illustrative practical work and demonstrations

In order to illustrate the stages of trainee development further it is interesting to examine the trainees' progress in one the dimensions mentioned earlier in a little more detail. Experimentation is seen as the very essence of science, testing out ideas, looking for evidence to support theories. But what should be the nature of school based practical work? On the one hand there is the illustrative type of activity where pupils familiarise themselves with scientific phenomena and on the other there is investigative work which involves the spirit of enquiry and pupils finding things out for themselves. At the lowest level practical work is little more than following a recipe supplied by the teacher. Few intellectual demands are made on the pupil and many pupils will complete the task without any understanding for what has gone on. At the highest level pupils use practical work to help them understand scientific concepts and lead them on to further learning.

Stages of development	Aspects of a trainee's development
Early idealism	Practical work is seen as being exciting, they prefer activities with motivational characteristics (flash and bang, bubble and fizz approach) and neglect the learning side of things.
Survival	They begin to see some of the problems in organising practical work and start to reject it or use simple practical work to fill in time during a lesson.
Recognising difficulties	The trainee begins to understand the need for orderliness in practical work. S/he is able to focus the pupil's attention on to key aspects of the activity.
Hitting the plateau	While practical tasks are less of a blur they are still only at the competent practitioner level and there is little real understanding of what is actually happening. In many instances the pupil's are doing little more than following a recipe.
Moving on	In order to help the trainee to move on s/he must ask themselves two key questions: "What is the purpose of this activity?" and "What are the pupils learning by carrying it out?"

Table 2: An example of trainee teacher progression in terms of understanding and administering practical work

A trainee progresses as s/he evaluates the usefulness of the various types of practical work and begins to understand how this activity can help pupils to learn. Table 2 illustrates typical stages a trainee will go through during the course.

In monitoring the progress of this year's trainees there appears to be little change in the amount of illustrative type practical work carried out in the two periods of schools experience. In addition the amount done bears a very close resemblance to that carried out by the teacher (figure 7) with almost seventy per cent of teachers questioned using this technique frequently.

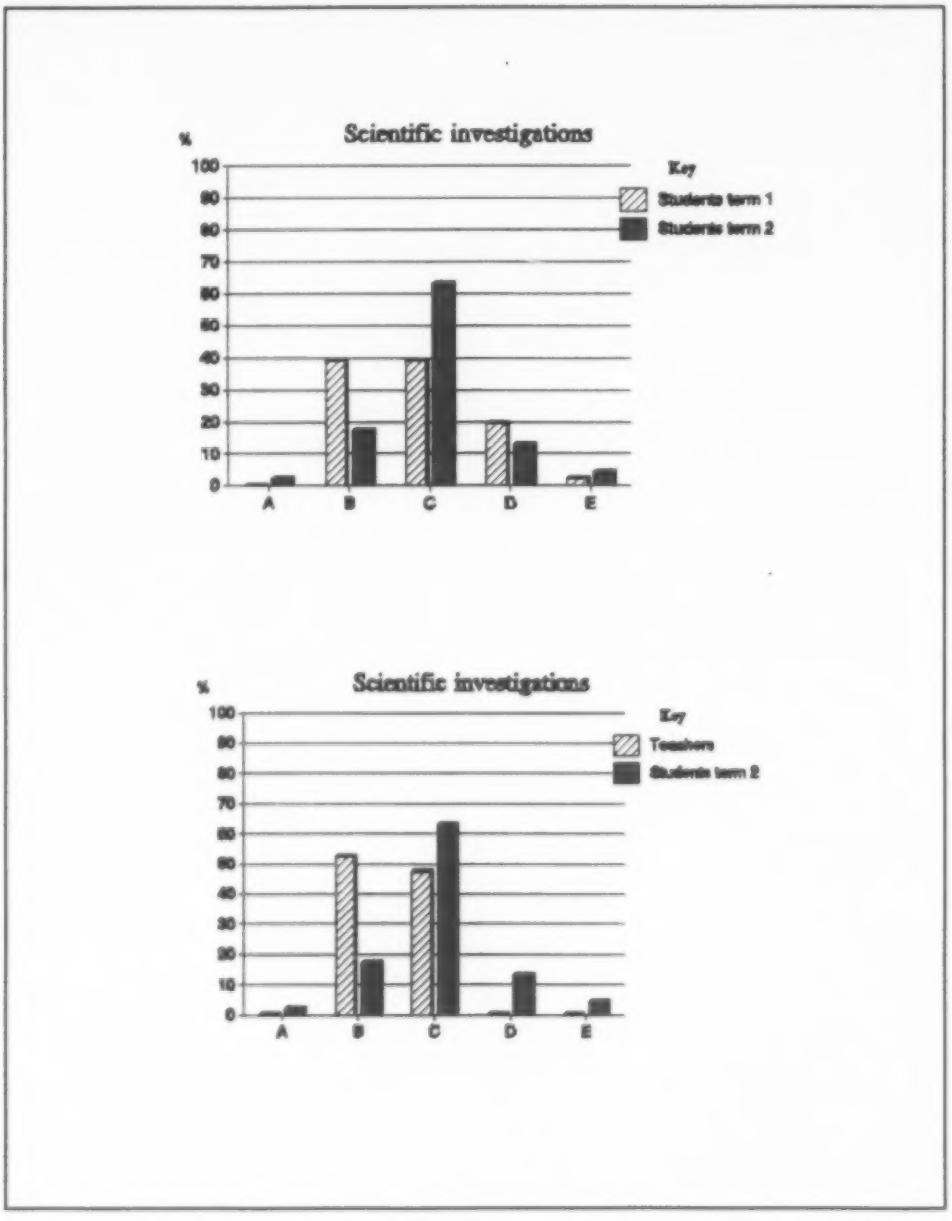


Figure 8. A comparison of the use of investigative practical work

The position with regard to investigative work (figure 8) is not so clear with the majority of teachers claiming to use this approach fairly frequently and trainees using the approach less frequently. While this may be due to the fact that trainees have not reached the stage in their professional development that they can cope with this type of work it is possible that there are other explanations for this difference. An alternative explanation might be that teachers wish to deal with this important aspect of national curriculum science themselves and therefore limit the opportunities for the trainee. Another possibility is related to the frequency of topics that lend themselves to carrying out investigative practical work. It may be the case that trainees are asked to teach topics where there are no opportunities for carrying out this type of work.

Conclusions

This first year of training teachers through a partnership approach has brought with it many questions as to the contributions made by the college tutor and the school mentor to the development of the trainee. The enormous benefit that the system has brought to the course is the increased contact the trainees have had with experienced teachers in the schools. However, there is still a long way to go if we are to achieve the full potential of this new way of working.

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TWENTY-FIRST CENTURY MIDDLE LEVEL EDUCATION

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We know that transescents often are unhappy about their physical appearances, that they want to make social connections and earn status with peers, that they seek independence bolstered by security, that they are moving from concrete toward formal operational thought, and that they often question their abilities in school (National Middle School Association [NMSA], 1992, pp. 5-8). Transescents are early adolescents in transition (between the ages of 10 and 14). Middle schools most typically host students in grades 6, 7, and 8. Middle level education reform applies to any school organization wherein transescents are enrolled. In the United States, these organizations include various grade level configurations: K-12, 1-8, 5-8, 6-8, 7-8, 7-9, 6-12, 7-12, and others.

Teachers in the middle grades must acknowledge transescents' needs and preferences in order to create meaningful experiences for students in these grades. We must offer opportunities for these students to: develop good nutritional habits and effective exercise programs; participate in cooperative learning and guided social interaction; practice decision making and be supported through adult guidance interventions; operate flexibly within structured guidelines; and rise to meet positive expectations (Van Hoose and Strahan, 1988, pp. 33-43).

In the United States, we have experienced a hill and vale ride in the progression of reform in education at the middle level (Hechinger, 1993). As early as 1910, Frank Bunker, in Berkeley, California, organized a school responsive to students in grades 7, 8, and 9. Early in the 1920s, changes in the U.S. economy affected schooling practices; specifically, group differentiation (i.e., tracking) was institutionalized. In 1927, Koos wrote in opposition: "Equalization of educational opportunity cannot be achieved without adjustment to individual differences" (p. 62). Amidst this centeredness controversy, the use of standardized tests increased; these test scores were used for sorting purposes. By 1930, support waned for the student centered middle grades experience.

A quarter century passed before a substantive argument was issued in support of a schooling organization separate and distinct from the senior high school. It was a Harvard past-president, James Bryant Conant (1959), who articulated the conceptualization of transescence. He noted that youth between the ages of 10 and 14 are in transition; that they are neither children nor adolescents; and that they make distinct transitions in categorical development: intellectual, psychological, sociological, and physical (p. 16).

Slowly, a new reform movement developed. Practitioners in the heartland of the U.S. developed a regional organization called the Midwest Middle Schools Association. This professional organization grew throughout the 1960s; and in 1973, the MMSA was formally reorganized as the NMSA--the National Middle School Association. The NMSA was a national outgrowth of the regional movement.

In 1980, a study of education in the middle grades was funded by the Lilly Endowment Fund. The conclusion of this study served as an inspiration to reform: do something to stop to stop transescents from drifting into dead ends (p. 48). The report of this study gave impetus to the need to define a clear sense of purpose for middle grades education and to create meaningful learning experiences for transescents.

The NMSA issued a statement listing the ten essential elements of a middle school. These elements served as a guide in the reform movement. In a true middle school there would be the following:

1. Educators knowledgeable about and committed to young adolescents;
2. A balanced curriculum based on young adolescent needs;
3. A range of organizational arrangements;
4. Varied instructional strategies;
5. A full exploratory program;
6. Comprehensive advising and counseling;
7. Continuous progress for students;
8. Evaluation procedures compatible with young adolescent needs;
9. Cooperative planning; and
10. Positive school climate. (1982, p. 19)

In 1985, the National Association of Secondary School Principals issued an Agenda for Excellence at the Middle Level. This document is significant in the fact that this agenda was set by the professional organization that addresses secondary education issues on the national level. The NASSP recommended that middle level educators create developmental experiences that center on core values and diversified culture; curriculum that is rich and connected to the lives of the students; instructional strategies that are varied and inclusive of technology; teachers and principals who are specifically prepared to serve young adolescents; and programs that ensure effective articulation and orientation (pp. 2-9).

The Carnegie Corporation of New York established the Carnegie Council on Adolescent Development in 1986 to place compelling challenges of the adolescent years higher on the nation's agenda. The Carnegie Council convened as a task force of leaders in education, research, philanthropy and government, including then-Arkansas Governor Bill Clinton. The task force members examined new approaches to the education of transescents. The result of the work of the task force was the publication and national dissemination of the report, Turning Points: Preparing Youth for the 21st Century.

The report is bold in its recommendations. The task members state that implementing their recommendations would vastly improve the educational experiences of all middle grades students. Middle grade schools should be places wherein their exists small communities for learning that feature mutually respectful relationships with adults and peers. The academic program in these schools produces critical thinkers and responsible citizens. In these schools, success is ensured for all students through the elimination of tracking and the promotion of cooperative learning and flexible instructional time. They recommended that the teachers and the principals be expert at teaching transescents and be empowered to make the critical decisions that affect the experiences of their students in school. In these schools, health and

fitness would be high priorities and families and community members would fill meaningful roles within the school life.

Turning Points has been widely read in the United States. It is a document that is read in most university courses for preservice teachers studying middle level education; the document has been included in inservice programs for middle grades faculties; the document is cited in nearly every article and book published under a "middle school" heading.

With the reform movement reinvigorated, James Beane published a proposal considered radical by some (educators and community leaders alike). In his book, Beane described a vision of the reformed middle grades experience and of the attributes students should gain during middle level education. Beane is brutal in his attack on the separate subject approach which characterizes the junior high school (and, frankly, the middle school) organization. He proposes a curriculum based on transescent needs and concerns through thematic instruction. Beane purports that reorganizing the curriculum is the critical element in reform. The thematic curriculum: repositions important subject matter within the study of themes such as democracy, human dignity, and diversity. Beane repositions skills from isolated "learnings" to functional acquisitions developed and used in context.

In 1991, the NMSA commissioned a Delphi study to help determine the course of the immediate future in middle level education. Jenkins and Jenkins used a four-round series of questionnaires. The NMSA Board of Directors nominated candidates for the panel of experts; a total of 103 persons were selected to represent diversity of educational involvement and expertise. Jenkins and Jenkins identified 16 policy initiatives to undertake within the next two decades. Three major themes emerged through clusters of initiatives recommended: legitimize middle level schooling, make the curriculum uniquely and developmentally responsive to transescents. and build productive family and community partnerships. The priority events are listed below; these are NMSA's goals to be accomplished by the year 2010.

Priority 1: Middle level schools are recognized as a legitimate level of education, along with elementary and secondary schools

Priority 2: Both curriculum and instruction become more relevant to the developmental characteristics of middle level students.

Priority 3: Teams are organized or reorganized into interdisciplinary teams with sharedresponsibility for the same group of students.

Priority 4: Universities and colleges (nationwide) offer state approved middle level certification programs.

Priority 5: Public acceptance of the middle school philosophy leads to a vision that supports the growth and development of middle level schools.

Priority 6: Inservice/re-education of existing middle level and non-middle level certified faculty is increased to implement and maintain knowledge of the middle level child.

Priority 7: Cooperative learning and other heterogeneous strategies will replace current grouping and tracking strategies.

Priority 8: A majority of middle level schools adopt interdisciplinary teaming and advisor-advisee programs.

Priority 9: State/local policy makers recognize the need for adequate funding of middle level education.

Priority 10: Curriculum will be more integrated and interdisciplinary throughout the middle school program.

Priority 11: Programs to develop skills in resisting peer pressures, to help form values, and to teach the causes and effects of substance abuse are increased.

Priority 12: Parents and schools form partnerships to meet the needs of the whole child.

Priority 13: Middle level professionals are major student advocates, serving as connectors for students from elementary to middle school and from middle school to high school.

Priority 14: Collaboration and cooperative problem-solving replace competition as the driving philosophy of middle level instruction.

Priority 15: The "integrity" of the middle school program is preserved.

Priority 16: Leaders are faced with developing plans that allow for continued growth and development of middle level schools and the middle school movement.

Since 1991, the most significant activity in reform has focused on curriculum integration. There are significant issues to resolve concerning integration. Drake (1993) depicts three integrated curriculum models (pp. 46-47). In the multidisciplinary approach, there are obvious connections made in the separate disciplines; in the interdisciplinary approach, the connection cross discipline lines; in the transdisciplinary approach, the connections are embedded in relevant and meaningful transescent-contexts. There are many researchers publishing works germane to the integrated curriculum (Manning, Meinbach et. al.; Ross, Springer and Stevenson). Clearly, in a short amount of time since the Delphi study, priorities 2, 3, 8, 10, and 14 are being addressed. The professional middle level educator must be prepared to answer metaphysical, epistemological, and axiological questions and to convey the answers in lay terms to the community.

It must be noted that there are significant impediments to this vision of the reformed middle grades school. Stevenson (1992) notes that middle level education change requires collective vision and volition; he provides a comprehensive description of these impediments to change:

1. Timidity and loyalty to traditions have proved to be rigid limitations on the capacity of many educators for overcoming or transcending whatever may be accepted conventional practice.
2. The practice of tracking students for instruction by so-called ability measures persists even though comprehensive analysis of research data does not support tracking.
3. Teachers are preoccupied with their own performance in the classroom.
4. Teachers and others contend that everyone must be doing the same thing at the same time and that the best learning derives from prepackaged instructional materials such as textbooks, workbooks, kits, and systems.
5. It is believed by many that students must be kept busy and out of trouble; students' potential as scholars and lovers of learning is rarely considered.
6. Teachers and principals fear that departure from prescriptive curricula will result in lowered standardized test scores.

As we move into the 21st Century, we must be prepared to manage change in order to fulfill the goals set by the NMSA for middle grades education by the year 2010. Sparks (1992) offers change management suggestions; he contends that change is a force that educators must learn to manage if we are to restructure schools for the 21st century. He recommends the following:

1. Educate leaders;
2. Use a systems approach;
3. Use a team approach that recognizes that all stakeholders have an essential role to play in the improvement process;
4. Share power with teachers, principals, family members, community members, and students;
5. Plan carefully, but be adaptable and flexible;
6. Recognize the subtle tension between the importance of establishing readiness for change and the need to get people to try out new practices;
7. Provide quality inservice and other staff-development opportunities;
8. Make certain that innovative practices recommended to teachers are research-based and teacher-friendly;
9. Recognize that any changes affect people and design strategies to address these effects;
10. Acknowledge the effects of "implementation dip";
11. Help teachers develop and personally meaningful understanding of any innovation;
12. Search out and value "paradigm shifters" and "paradigm pioneers";
13. Take the long view and be patient with the process of change.

What will prove to be most important in the middle grades reform movement is that educators, community members, and transescents have a clear and compelling vision for our future. We must be ever mindful of student outcomes and society benefit. The 21st century holds promise for the fulfillment of the vision of the transescent-centered middle grades school. It is in our hands as professional educators to manage the change process. The transescent who has been well served in the middle grades will be an intellectually reflective person who is healthy, considerate and ethical, who is prepared to be a global citizen, and

who is enroute to a lifetime of meaningful work (The Task Force, 15). Our challenge now is to create structures for learning that will yield appropriately developed transescents.

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